RESEARCH

Florian R. Hertel

Social Mobility in the 20th Century

Class Mobility and Occupational Change in the United States and Germany

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I dedicate this book to the 186,472 men and women, young and old and of every class, race and ethnicity, who allowed me to write it by disclosing to strangers very intimate information about their family origins and their current lives. I hope the pages to come are worthy of their gift through the formulation of a truthful account of their collective mobility experiences and their successes and failures in reaching what they might have dreamt for their lives.

Florence, Spring 2016

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1 Introduction

Social mobility is commonly understood as intergenerational movement between social positions. The two positions that are compared throughout this work are defined to be: the social position of fathers during the childhood and adolescence of individuals, and the individual positions obtained later in life. Social mobility, hence, denotes the intergenerational process that links social origins and social destinations. While more than a few pages of this book are devoted to describing this process, I am not particularly interested in the process itself, but rather take it as a fact and concentrate on the outcome, i.e. the phenomenon of intergenerational mobility as it manifests itself in the flow of consecutive generations. While the main purpose of this study is descriptive, it provides an in-depth description of these changing mobility flows over the whole 20th century. As will become clear, the study of social mobility is intimately related to that of social stratification. In fact, the inequality of life chances conveyed through social positions is what produces the opportunities and limits which shape our life courses and, consequently, social mobility.

While there are many attributes of social position, e.g., income, lifestyle, status, prestige, education or religion, to name but a few, I use the term in the following almost exclusively to denote class positions. A class is, in my mind, a social entity born out of the division of labor and the social relations of production. While these relations primarily regulate the world of work and production, they are also intimately ingrained in the political, social and cultural systems which allow them free range or define their boundaries. Classes are related to other classes through the social relations entailed in the production process. The way production is organized and the way in which labor is employed in production shapes the relations between employers, between employers and employees, between employees, and indirectly between all of the aforementioned and (economic) dependents. These relations are potentially full of conflict as interests may be antagonistic, but there are various institutions, most importantly the welfare state and labor law, which stabilize these relations by containing these conflicts and constraining their potentially harmful outcomes. Individuals populate a class in the sense that they share similar positions within the relations of production. Because of the importance of work in our lives, class is a useful proxy for various other individual characteristics. Classes, for example, frequently differ in terms of their incomes, education,

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wealth, or more general living conditions in the past, present and future. Thus, class membership signals group differences in the various dimensions that generate life chances and, to the extent that the training for a job or work itself entails enduring socialization processes, also norms, preferences and behavior which may influence interactions to any degree imaginable.

Hence, social mobility understood in the context of this work denotes the intergenerational trajectory between two classes. In the study of social mobility, two perspectives are generally distinguished (Erikson & Goldthorpe, 1992). The first perspective is taken by directly observing, describing and explaining mobility trajectories, termed in the following *absolute mobility*. When studying absolute mobility in the following, I frequently speak of mobility experiences to emphasize that the phenomenon under discussion is directly perceived and interpreted by the individual. The second perspective entails the comparative study of intergenerational trajectories between different classes termed *relative mobility*. Because it is a relational perspective that weighs the experienced mobility trajectories of some against those of others, this second perspective allows us to infer from a given mobility pattern about the openness of the constituting class structure, or in other words, the permeability of social boundaries which through unequally distributed advantages impede or enforce mobility. Together, all possible contrasts between classes make up the social fluidity regime that exists in a country at a point in time and can be compared between countries or across time points. The two perspectives are related to different concepts of equality. While the study of absolute mobility allows mobility researchers to speak about the experienced intergenerational inequality of conditions, relative mobility informs us about intergenerational inequality of opportunities.

The primary question which I try to answer in the following pages is to what extent absolute and relative social mobility changed over the 20th century. The prime focus in the analysis lies on the latter half of the century in which countries underwent first the consolidation of their industrial economies, followed by a transformation into post-industrial economies. This latter trend changed the occupational landscape markedly and arguably also affected the class system with notable consequences, like the polarization of life chances. These consequences, however, are likely to affect the stratification processes underlying social mobility (Bell, 1973 [1999]). To effectively map the fundamental transformation from the industrial to the information age as Castells (1996 [2010]) termed the current post-industrial era, and relate it to social mobility requires a conceptual tool box that is sensitive to this transformation, while still being found in the logic and language of class analysis. Thus, answering the first question, as will be shown below, requires us to tinker with the existing concepts and to creatively alter the well-served concepts of mobility research that I deemed, perhaps unjustifiably, unfit for the present purpose. It is in this sense that this work comprises two elements which constantly struggle with each other over their relative importance on the following pages. Eventually, it is the former, i.e., the analysis of social mobility in times of post-industrialization, that dominates the latter, i.e., developing the conceptual tools that allow the joint study of recent social change and social mobility, even though the latter is logically preceding the former.

Studying social mobility is frequently a comparative project. The question of whether a society is more open than another or whether a society becomes more open overall or relatively for some of its subgroups has guided various authoritative studies in this research field. While this study is not comparative in the true sense of the word, the following pages are dedicated to analyzing intergenerational class mobility in two countries. The reason for a dual-country as opposed to a comparative country analysis of social mobility is intimately related to the double-headed research project. In order to assume more generality for my claim that social mobility changed similarly across post-industrializing countries over the last century, it was necessary to use more than one country. However, with regard to developing a toolkit for such an analysis, it posed a serious problem. Having to develop, validate and describe a stratification measure is a complicated task on its own, even more so when it has to be performed for two countries. Moreover, introducing a new conceptualization of stratification into mobility research also requires the demonstration of the existence of mobility boundaries and channels, a work that can easily be relegated to references if an existing scheme is taken. The resulting two-country solution is the smallest common denominator because it allows me to assume some degree of generalizability while still allowing for the assessment of the stratification order in some detail. Whether I have succeeded in paving this middle way is of course completely up to the reader's judgement. Once the decision for a dual-country study was made, the choice of countries came rather naturally: the United States of America and the Federal Republic of Germany. Both countries were selected for the analysis of social mobility because they represent very diverse cases in terms of the institutional, social and economic context in which social mobility takes place and in the degree of post-industrialization (Seawright & Gerring, 2008).

The United States is often described by (lay[1]) commentators as a particularly open society in which exceptional ascents *from-rags-to-riches* are possible, whereas Germany has time and again been demonstrated to be a more rigid system with regards to intergenerational mobility (Erikson & Goldthorpe, 1992; Breen &

[1] In fact, nearly 40% of Americans today think it is very or somewhat common that Americans start poor, work hard and become rich (Trust, 2009, p. 5). Another 32% deem it somewhat uncommon, while less than every third American (27%) thinks of that exceptional trajectory (rightfully) as very uncommon.

Luijkx, 2004; Beller & Hout, 2006a). For example, the educational system in the United States does not sort individuals into different school types with different curricula preventing mobility between tracks and limiting the options regarding further education later in life, as is common for Germany's system of early tracking (Rubinson, 1986; Allmendinger, 1989; Müller & Shavit, 1998; Buchmann & Dalton, 2002). Consequently, Germans undergo a highly stratified but also rather standardized system in terms of quality, whereas quality standards vary more widely across American neighborhoods due to their dependence on local school boards which decide on school budgets and curricula (Kerckhoff, 1995; Pfeffer, 2008). Of some importance for this project is also the difference between the levels of post-industrialization between both countries. The very diverse welfare state regimes in both countries allowed the occupational structure in the United States to polarize more extremely through the persistence of a relatively large low-wage labor market segment that only recently also started to expand in Germany (Esping-Andersen, 1990, 1999; Emmenegger et al., 2012b). As a result of the manifold social, political and economic differences, income and wealth inequality is much higher in the United States as compared to Germany (Piketty, 2014).

Without much further ado, I will briefly give an overview over the following chapters and their relation to the primary and secondary goals in this work. In the following Ch. 0, the stage is set by a description of the societal change over the course of the 20th century and the review of two major theoretical accounts to explain social mobility. Against the startling puzzle that although societies changed substantially, social mobility differences are mostly marginal and change across cohorts is only modest (if at all), I develop an account which formulates the conditions under which social mobility is likely to have changed similarly across countries over the 20th century. Ch. 3 reviews existing conceptualizations of the inequality space and evaluates the former in light of the task at hand. While all schemes have their undisputable merits, no single scheme is deemed fit for the purpose at hand, lacking either the necessary horizontal differentiation between industrial and post-industrial locations or leaving out the structural foundation of class analysis so fundamental for an explanatory account of social mobility. Equipped with the concepts employed in the variety of class schemes reviewed, Ch. 4 sets out to derive a class scheme based on the foundations laid by Esping-Andersen (1993), Oesch (2006b), Goldthorpe (2007c, pp. 101-124) and Wright (1997). The resulting class scheme of **i**ndustrial and **p**ost-**i**ndustrial **c**lasse**s** (IPICS) differentiates occupations horizontally in terms of their work logics and hierarchically in terms of the two dimensions of employment relations. In the following Ch. 5, the validity of the scheme is assessed and, eventually, judged satisfactory. The following section is dedicated to the employed data base. The empirical study of a phenomenon over the course of a whole century, even if this seemed to some observers as short, is very challenging in terms of the data. Because there is not any one survey that covers the 20th century, I decided to jointly analyze 15 nationally representative surveys together. Ch. 6 describes the employed datasets in some detail, discusses problems of the tedious harmonization work necessary and offers some preliminary information on the studied samples. Finally, I explain the chosen cohort design, which based on four decades of data, allows us to arrive at conclusions about social mobility for the whole 20th century in both countries. Before studying social mobility, I describe in Ch. 7 the stratification order as it is represented with the new class scheme and provide class profiles to guide the following analyses. This section closes with the assessment of occupational structural change using the class scheme.

The following four chapters exclusively focus on the study of social mobility in both countries and are furnished in a parallel way to allow for greater readability and foster their utility for a comparative reading that is not the aim of this work. Ch. 8 initially describes absolute mobility patterns between IPICS classes, before studying the change of intergenerational trajectories across the 20th century in some detail with a focus on horizontal and vertical dimensions of mobility. Ch. 9 repeats this analysis for the United States, but devotes some space to racial and regional differences in absolute mobility patterns. The following chapters study relative social mobility and the change of social fluidity in both countries. Guided by earlier research (Erikson & Goldthorpe, 1992), I develop a model of social fluidity that allows for the discernment of horizontal differences in relative mobility chances in Ch. 10. This model is applied in Ch. 11 to the German data before the new class scheme is directly compared to its paradigmatic forbearer, the EGP scheme. In the remainder of this chapter, the development of social fluidity across cohorts over the course of the 20th century is studied and explanations for change among men and women in terms of the previously introduced fluidity model are offered. In Ch. 12, the same analyses are employed for American men and women, complemented by analyses for African American and white Americans to uncover important racial differences in the change of social fluidity. This book closes with a brief synopsis and comparative interpretation of the findings along the lines of a common mobility regime in Ch. 13. It also offers some suggestive findings on the question of which of the two countries has been more open and whether the change in social fluidity observable over the 20th century has been of similar strength.

2 Social change and social mobility

In the first part of this chapter, I will discuss selected social, economic and political evolutions that might have affected social mobility over the last century. Between the turn of the century and the demise of socialism, the world experienced not only some of the most gruesome catastrophes but also several technological and social revolutions. Following Hobsbawm (1994), one can describe this century as mainly made up of four decades of crises (the two World Wars and the Great Depression), nearly three golden decades of rising equality and living standards (Golden Age or Trente Glorieuse) and three decades of economic crises and global insecurity.[2] In less than a century, various societies shifted from primarily agrarian or proto-industrial to industrial and, finally, post-industrial societies (Castells, 1996 [2010]). While societies' transformations over the last century were manifold and so substantial that a contemporary society might have more in common with other societies today than with their prior manifestation a hundred years ago, the following fragmentary review focuses largely on the two interdependent social systems which are most important for the mobility process: the economic structure and the welfare state.

In the second part of this chapter, two theories for the evolution of social fluidity trends will be summarized and a third alternative hypothesis about institutional conditions, which arguably drive fluidity levels, will be introduced. While the upgrading of the occupational and educational structure affected absolute mobility for most of the 20th century (Erikson & Goldthorpe, 1992), social fluidity arguably might have evolved in either of three directions. The industrialization and post-industrialization thesis stresses that economic and social changes increase social fluidity because recruitment processes become more universalistic or meritocratic with technological advances (Treiman, 1970). Alternatively, social

[2] Following Hobsbawm in distinguishing the 20th century in three phases results in concentrating primarily on the West. Moreover, other historians rather concentrated on the continuity (of conflicts) than the substantive social and political change (Ferguson, 2007). The model for explaining change in social mobility that is developed in the following is therefore not easily generalizable. Consequently, any generalization regarding any country beyond the two Western countries studied in the following, particularly regarding countries in other world regions, requires one to take into account the interrelations between these countries and the world economy and power structures and, of course, country-specific historical conditions which shaped the institutions that affect national social mobility patterns.

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fluidity may remain stable because it relates to the underlying structure of inequality that discourages overly risky mobility strategies in favor of class reproduction (Goldthorpe, 2007c). Motivated by the contrast of strong social changes and stable social openness, a third hypothesis is offered that formulates conditions under which fluidity might change. According to this effectively maintained inequality in social fluidity argument, societies tend to be more open if two conditions are met. First, if the educational system as a primary mediator between class origins and class destinations becomes more open and, second, if the occupational structure produces more positions than are needed for the reproduction of the elite, discouraging costly discrimination strategies. Once both conditions are met, I will argue, relative and absolute (upward) mobility are likely to increase.

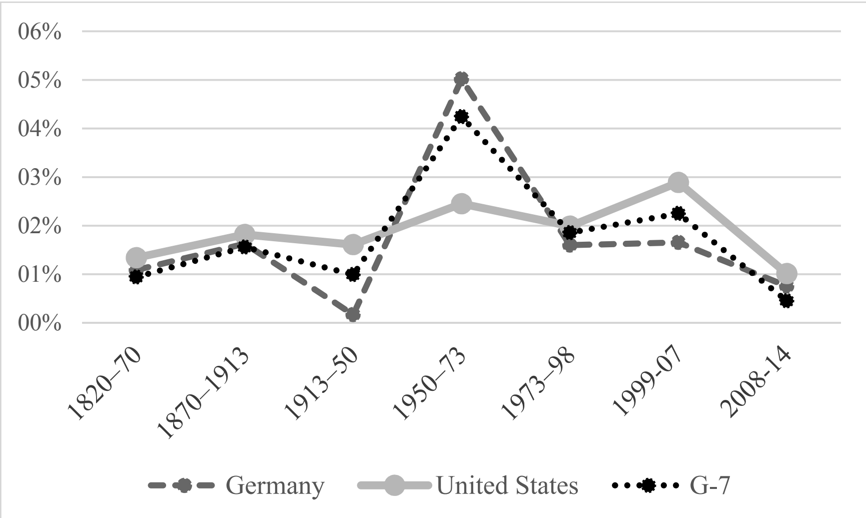
2.1 Societal change and the occupational structure

The great sociological classics Marx, Weber and Durkheim described modernity as continuous processes of social change. While Weber (1922 [1978], 1930 [2002]) identified the ongoing process of rationalization as an inevitable and irreversible transformation, Durkheim (1893 [1960]) saw in the ongoing division of labor the driving forces of societal change. Marx (and Engels) (1848 [2008]; 1867 [1999]), on the contrary, identified the dialectic conflict between the forces of production and the social relations at the core of societal change. As much as their assumptions, methods and findings differed, so did their predictions about the transformation of societies, ranging from Weber's gloomy iron cage of bureaucracy to Durkheim's vision of corporatist solidarism and Marx's (future) communist society in which one hunts in the morning, fishes in the afternoon and criticizes after dinner. While the verdict about the future can never be spoken in the here and now, all three shared a common belief that societal development is not only contingent on social and technological forces, but that a unidirectional evolution may indeed be possible. There are good reasons to be sceptic about predictions of a large-scale international convergence towards one prototypical society (but see, Fukuyama, 1992; Eisenstadt, 2000). The similarity of Western societies in terms of their economic order, political and cultural systems, however, motivates the following stylized and unified account of social change and social mobility.

Economic change over the last century

The most intriguing trend over the last century is the continuous growth of Western economies accompanied by an unparalleled rise in the economic well-being of its populations. Over the last century, GDP continuously grew in the industrialized countries (Baumol, 1986; Maddison, 1987, 2006). Figure 1 displays the development of GDP per capita growth rates between 1820 and 2014 for the United States, Germany, and the G7 (France, Germany, Italy, the United Kingdom, Canada, the United States and Japan) country average. While economies grew sluggishly over the 19th and early 20th century, growth spiked in the post-war period between 1950 and 1973. Although GDP was constantly growing above 1% until the Great Recession, it never again reached the high levels of the golden age of industrial capitalism (Maddison, 1987, p. 649f.). The peak in the middle of the 20th century arguably resulted from lagged industrialization and prior misallocation of labor (mainly in agriculture), as well as increasing international trade (Temin, 2002).

Figure 1: GDP per capita growth rates in G7 countries, 1820 to 2014



Note: GDP before 1999 is taken from tables A1-d (p.186) and A3-e (p.217) in Maddison (2006). Later values are averages of OECD estimates for the given periods.

This tremendous economic development coincided with massive transformations of the economic landscape in the G7 countries. The change from agricultural to industrial and finally post-industrial economies can be illustrated through studying changing employment rates by industrial sectors. Based on data from Singelmann's (1978), Castells' (1996 [2010]) and the International Labour Organization's *Key Indicators of the Labour Market* data base (ILO, 2014), three transformative phases of the employment structure of the G7 countries can be differentiated over the past century. First, societies became post-agricultural as ever fewer individuals were employed in agriculture. Between the early 1920s and the late 2000s, the share of individuals employed in agriculture or other extractive industries declined in the United States from 29% to 2%, and in Germany from 34% to 2%. Second, from the beginning of the century to the mid-1970s, national economies industrialized so that the manufacturing, utilities and construction industries became the largest employers. In 1970, around 33% of Americans and 49% of Germans worked in the transformative industries and most frequently, of course, in manufacturing. Third, towards the end of the century manufacturing declined in all countries, although to varying degrees, while employment in service industries continued to increase substantially, replacing manufacturing as the most important segment for employment. While in Germany still around 30% of workers were employed in manufacturing in the late 2000s, their share dropped in the United States to one-fifth of the employed population. The expansion of services was driven mostly by two types of industries: employment in producer and business services (mostly banking, insurance, real estate, engineering and accounting) and social services (mostly educational, health and welfare services). Employment in business services increased in the United States between 1920 and 2008 from 3% to 18%, whereas employment in social services grew from 9% to 36%. In Germany, the employment in producer services increased more moderately from 2% in 1925 to 14% in 2008. However, social services increased their fraction of total employment from 6% to 30% of all employed Germans. The same development is observable in the other G7 countries. With the exception of Germany, Japan and Italy, social services became the most important industry for job creation. This most recent transformation is commonly referred to as the rise of the service, information or knowledge economy (Bell, 1973 [1999]; Gershuny, 1978; Castells, 1996 [2010]).

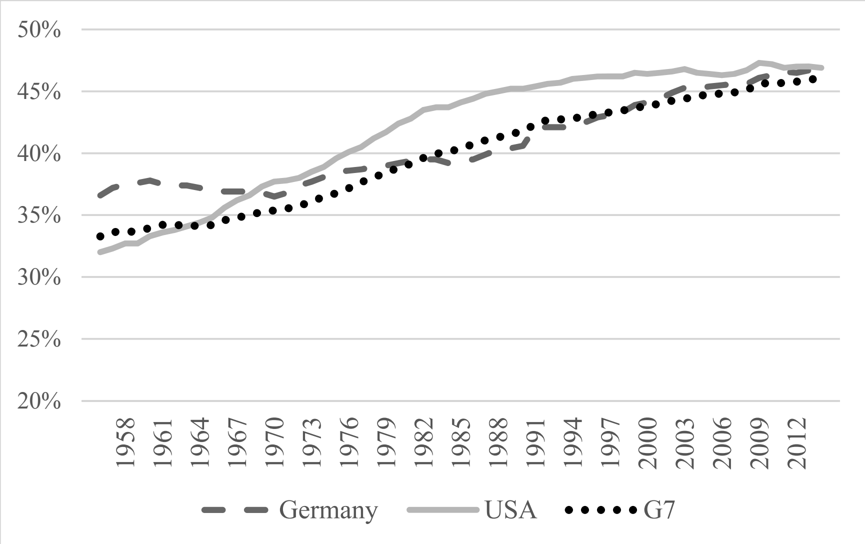
Occupational change and intergenerational mobility

The change of the economic systems is associated with the transformation of the occupational structure. As employment in manufacturing declines, occupations in services grow. The technologically driven demand for higher educated labor, especially for technicians, professionals and semi-professionals in the growing health, social and business services sector results in an upgrading of the occupational structure (Goldin & Katz, 2008; Oesch, 2013). At the same time, mechanization, automation and routinization renders routine manual and non-manual occupations unnecessarily costly to sustain (Autor et al., 2003), while non-routine service positions flourish under the right institutional conditions (Esping-Andersen, 1999; Esping-Andersen, 2000; Wren, 2013). Over the last century, a gradual upgrading and, at least in some countries, a polarization of the occupational structure is the result (Wright & Dwyer, 2003; Bernardi & Garrido, 2008; Oesch, 2013; Wren, 2013). In times of occupational upgrading, upward mobility is likely just because the class distribution between parents and children differ and force individuals to find other, likely better, jobs than their parents had to take up. In contrast, polarization may create job opportunities also at the lower end of the skill distribution which might attract all of those who choose (or were forced) to exit the educational system relatively early. Whether or not mobility increases or decreases in times of polarization is highly dependent on the routinization potential of middle class white or blue collar jobs. If they thin out, mobility from the middle to higher and lower classes becomes more likely. At the same time, women become more likely to be mobile because it is the male domains of agricultural and industrial employment that shrink, whereas employment opportunities open up in (potentially) middle-class, frequently female-dominated care and service positions.

The feminization of work

One side of the feminization of work is the massive influx of women into the labor market (Standing, 1989, 1999). As can be seen in Figure 2, the share of women among the employed population increased substantially in all G7 countries, and in fact in most countries in the world, over time. In the United States, for which the longest time trends are available, the fraction of female workers of all employed persons increased since the end of WWII from below 30% to around 50% in 2011. The same is true for Germany in which the female share of employment increased from the 1970s onwards from 37% to 47% of the overall employed population between 15 and 64 years old in 2014. By 2015, nearly every second employed individual in all G7 countries was a woman.

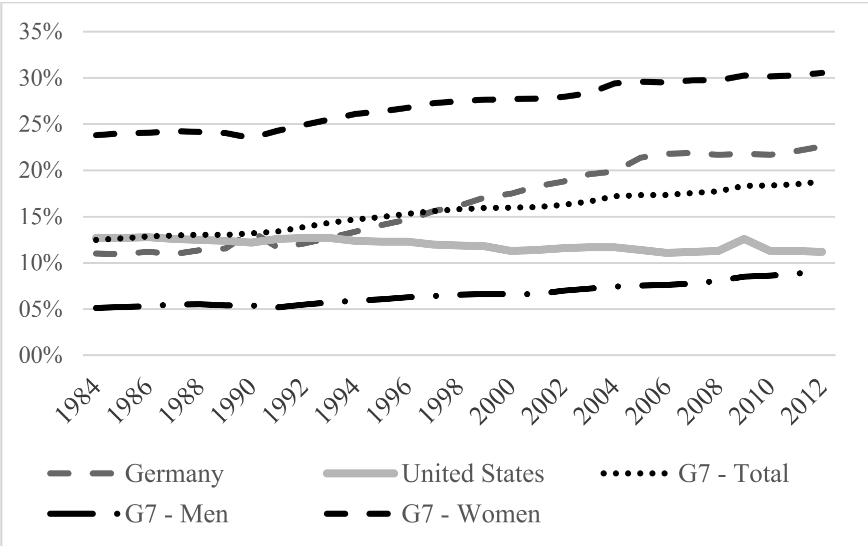
Figure 2: Women's employment share in selected G7 countries



Note: OECD Labour Force Survey; own calculations. Individuals aged 15 to 65.

The increase of women's labor force participation was driven by diverse reasons. The transformation of the economy depicted earlier provides a good starting point (Schäfer et al., 2012). While relegated frequently to unpaid housework in times of mass production and the family wage, women's employment grew with the increase of services. Nevertheless, even in the Fordist heyday, women frequently manned the assembly lines in food processing, e.g., in canneries (Ruiz, 1987). Middle class women, in contrast, entered lower clerical occupations forming the administrative backbone of the Fordist era (England & Boyer, 2009). After the long demise of Fordism, the rise in social service occupations, particularly in education, the health industry, and personal services created those categories of jobs which are traditionally associated with women's fields of work (Esping-Andersen, 1999; Schäfer et al., 2012). Market and state provision of services that are generally expected from women in patriarchal societies, like child and elderly care, not only allow women to work by freeing their time, but also provide (relatively low paid) employment opportunities primarily for women (Esping-Andersen, 1990; Lewis, 1992; Esping-Andersen, 1999). While the post-industrial society offered ample demand for women's work, there are several factors which motivated women to take up paid work. While emancipation, increasing educational attainment and an increasing college premium spurred occupational attainment among better-educated women (Buchmann & DiPrete, 2006), the decline of the family wage and the male-breadwinner/female-homemaker model as well as higher rates of divorce and singlehood enforced women's labor market participation to make ends meet (May, 1982; Fraser, 1994).

Figure 3: Part-time employment in selected G7 countries, 1984 - 2012



Note: Development indicators of the World Bank 2015; OECD LFS data for Germany before 1991 includes only West Germany.

While women's employment rates rose, employment relations changed frequently for the worse. The buzz phrase of the feminization of work is moreover associated with the demise of the standard employment relation offering full-time, permanent employment with (however limited) career prospects and the rise of atypical employment contracts characterized by temporary contracts or part-time positions (Mückenberger, 1989; Kalleberg, 2000). While women have made inroads into paid employment virtually everywhere since the 1970s, overall working hours declined in most European nations (Alesina et al., 2006). This development was not only driven by the increasing integration of women into paid labor but represented a general feminization of working conditions for both men and women (Standing, 1989, 1999). Figure 3 displays the shares of part-time employed men and women in the United States and Germany and the overall G7 average for all, male and female part-timers. As is usual in international comparisons, part-time is defined as working less than 30 hours per week, whereas full-time is working 30 hours or more (Kalleberg, 2006).

Overall, part-time employment rates increased in all countries except the United States, where declining shares of female part-timers offset the rise among men. Outside America, however, male and female part-time employment became substantially more frequent. On average across G7 countries, part-time employment increased from 13% in 1980 to 19% in 2012. While part-time work among men increased from 7% to 9%, female part-time rates grew from 23% to 31%. There are of course strong international differences. While male part-time work was already comparatively frequent among Americans in 1980 (~7%), only 1% of German male workers in 1980 worked part-time (Sensch, 1997-2004 [2004]). The respective rate multiplied until 2012 to 9%. While the female part-time rate decreased in the United States between 1980 and 2012 from 20% to 16%, it increased from 29% in West to 38% in unified Germany. While part-time work is only one of the dimensions of atypical employment relations, it is by far the quantitatively most significant (Kalleberg, 2006). More importantly, part-time work, like marginal employment, low-wage jobs and fixed term employment, is strongly associated with jobs in personal and partly social services, and thus with the lower occupational strata in post-industrial economies (Esping-Andersen, 1993; Kalleberg, 2000; Kroos & Gottschalk, 2012).

Feminization of work and intergenerational mobility

The increase of female employment arguably affects the mobility of women. The growing labor force employment of mothers creates role models that encourage daughters to contemplate employment and careers for themselves. While this emancipatory argument cannot be stressed enough, financial reasons may also play along. To the extent that the feminization of work also means the decline of the standard employment relations for both men and women, daughters may learn early that only a dual earner household can afford a certain standard of living or avoid poverty. Thus, future employment not only becomes a chance for self-fulfillment, but also a pure necessity that may lead to early parental strategies which allow for the occupational attainment of daughters.

The dawn of the welfare state and its development over the 20th century[3]

The change of the economic structure and the influx of women into paid employment over the last century was accompanied, and partially produced by, the expansion of social rights and their consolidation in welfare states. Following the universalization of civil and political rights, social rights were established in the 19th and 20th centuries. In his historical analysis of civil rights, Marshall defined social rights as "the right to a modicum of economic welfare and security to the right […] to live the life of a civilized being" (Marshall, 1949 [1950], p. 11). In essence, social rights offset capitalism's inherent trend towards commodification, i.e. the process by which individuals are forced to sell their labor power (Polanyi, 1944 [2001]). However, there is no uniform evolution of social rights and consequently there are different types of historically grown welfare states (Titmuss, 1974).

Whether the welfare state regimes originally consolidated around pressing political problems like the increasingly hostile labor movement in Germany (Alber & Flora, 1981), or resulted from class coalitions between farmers and workers like in Sweden and Norway (Esping-Andersen, 1990, p. 30), or developed out of the institutional and political structures like in the United States and Great Britain (Orloff & Skocpol, 1984), they expanded (on the established pathways) considerably after the Great Depression in every country. While expansion is partly driven by economic growth, demographic change (the aging of the population) and the incremental growth of welfare systems (Wilensky, 1974), its form is likely to result from the struggle for power between different classes within constraining political structures (Korpi, 1983). Consequently, welfare states differ significantly in terms of their capacity for protecting individuals from life course risks (DiPrete, 2002). At least three types of contemporary welfare regimes are distinguishable (Esping-Andersen, 1990). They differ in their logic of organization, stratification and societal integration and in the degree to which granted rights allow decommodification in the Polanyian sense.

Each of the three types represents a unique combination of the role played by the state, the market and the family in the provision of social rights (Esping-

[3] In what follows, I will not try to assess the different schools of thought in welfare state research which offer diverse, empirically well-established narrations about the welfare state and its origins, ranging from mere economic development (Wilensky, 1974) to securing the relations of productions (Offe, 1972) or class struggles over power resources (Korpi, 1983) and the institutional arrangements (Skocpol, 1992). Ignoring the question of its conception and contested reasons for its expansion, I will employ welfare state research pragmatically to describe welfare state evolution over the last century and go into more detail where it matters for the study of social mobility. Well written and relatively recent reviews of the voluminous research field are provided in Leibfried and Mau (2008) and in Myles and Quadagno (2002).

Andersen, 1990, pp. 24-29). Liberal welfare state regimes like the United States, Great Britain or Australia, provide only very moderate levels of decommodification, mostly in the form of minimal universal transfers or means-tested benefits for low-income earners to uphold the pressure to work. Additionally, they rely heavily on the market to produce social services in forms of private insurances or employment-based fringe benefits. In effect, the liberal welfare state (re-)produces to a large degree labor market inequalities among the employed and a relative equality among the poor. Social-democratic welfare regimes like Sweden, in contrast, are universalistic with regard to the access to social rights and promote equality through comparatively high flat rate benefits. They rely primarily on the state for welfare production and integrate women into (public) employment instead of relying on them for welfare production within the family. If the liberal welfare regime produces the lowest levels of decommodification, the Scandinavian system exemplified by Sweden offers the highest levels of labor market independence in case of illness, unemployment or other life course risks.

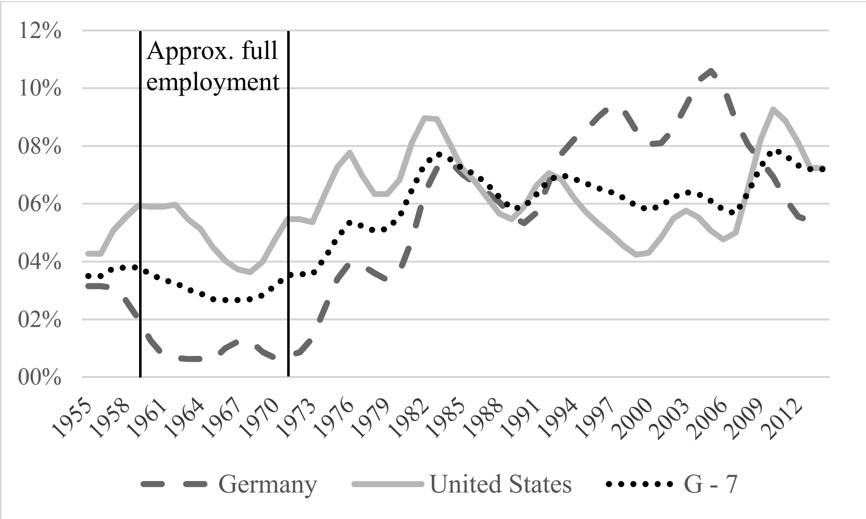
The degree to which conservative welfare regimes, e.g. those in Germany or Austria, decommodify lies somewhere in between the former two welfare regimes. Conservative welfare regimes rely primarily on families and the state to achieve decommodification by means of corporatist insurance-based policies which primarily create status preservation in old age or, today only temporarily, in case of unemployment. Traditional family models like the male-breadwinner/female-housekeeper model are especially prevalent here because the Catholic familiaristic trait embodied in the subsidiarity principle incentivizes care work in private households and does comparatively little to encourage female employment. While this ideal-typical framework has evoked various criticism and reformulations or additions (Leibfried, 1993; Ferrera, 1996; Bonoli, 1997; Hort & Kuhnle, 2000; Aspalter, 2006) and has been substantially questioned by recent implementations of liberal policies also in social-democratic and conservative regimes, it is still useful for understanding basic differences and similarities between welfare system and overall policies (Sainsbury, 1994; Esping-Andersen, 1999; Bambra, 2004, 2005, 2006; Scruggs & Allan, 2006; Sainsbury, 2012).

After a long takeoff phase of social policy experiments between the 1870s and early 1920s, welfare states consolidated and expanded considerably until the late-1960s. Transfer payments institutionalized in social security systems (pensions, public assistance, unemployment insurance and the like) as well as health and educational expenditures grew considerably. In total, social expenditures measured as share of total public expenditures increased between the turn of the century and the 1960s from 30% to 62% in West Germany, from 20% to 47% in the United Kingdom and from 30% to 53% in Sweden (Alber & Flora, 1981, p. 179f.). While institutionalized social rights in the United States date back to the introduction of veteran pensions during the Civil War (Skocpol, 1992), the (federal) welfare state was created comparatively late in the 1930s as a response to the Great Depression (Edsforth, 2000). During the 1960s, the American welfare state again expanded significantly as a result of Johnson's War on Poverty in the 1960s (Waldfogel, 2013).[4] It created social health care programs for low income groups (Medicaid) and older or disabled Americans (Medicare), work-incentive programs for unemployed cash assistance recipients, nutrition programs (Food Stamps) and employment-related income support programs in the form of the earned income tax credit (EITC), as well as a minimum income (SSI) for the elderly and disabled (Davies, 1996; Scholz et al., 2009; Bailey & Danziger, 2013). Regarding social expenditure levels, the American welfare state, however, lagged behind the European models (Castles, 2009).

Thus, welfare states expanded considerably in almost all industrialized countries over the 1950s and 1960s. Hobsbawm captures the post-war period quite precisely by stating that "[…] the political commitment of governments to full employment and – to a lesser extent – to the lessening of economic inequality, i.e. a commitment to welfare and social security, for the first time provided a mass consumer market for luxury goods which could now become accepted as necessities" (Hobsbawm, 1994, p. 269). Arguably, the Cold War and the competition of the democratic-capitalist and the autocratic-socialist systems motivated much of the increasing social spending to legitimate social superiority claims. While social security programs form a crucial part of modern welfare states, the expansion of education and demand stimulating policies resulting in full employment are even more important for the study of mobility. While the Sputnik crisis increased educational spending to compete with the assumed technological superiority of the U.S.S.R., the GI bill in the United States allowed veterans from WWII and the Korean War to enroll in higher education with generous grants (Meyer et al., 1977; Bound & Turner, 2002). The most important welfare policies, however, were arguably, first, Keynesian macroeconomics with their focus on full employment through demand management (Keynes, 1936 [2007]) and, second, educational expansion, i.e. the increase of available schooling opportunities on all levels, the rise of compulsory schooling age and the reduction and abolishment of schooling costs, resulting in increasing school enrollment on all levels since the 1950s (Meyer et al., 1977).

[4] One should add here all of the affirmative action programs and civil rights acts which ended Jim Crow and allowed African Americans not only to vote but also to start to enjoy the benefits of the welfare state (Katznelson, 2005). While I lack the space to go into more detail here, the topic will surface again in the discussion of racial differences in intergenerational mobility in the United States.

Figure 4: Unemployment rate in Germany and the U.S., 1955 - 2014



Note: ILO Labour Force Survey; Data for Germany includes West Germany only until 1990; own calculations. Three-year moving average.

As Figure 4 shows, unemployment rates declined in G7 countries over the course of the 1950s and 1960s and approximated full employment levels in the 1960s. While unemployment was below or around 1% in France, Germany, the United Kingdom and Japan, it was around 5% in Italy, the United States and Canada. However, unemployment rose in the mid-1970s after the oil crises and the following phase of stagflation (Burda et al., 1988; Lal & Wolf, 1993). Over the 1990s, unemployment rates were high or increasing in most countries but declined in the 2000s in most G7 countries except for Germany and Japan. While the unemployment rate decreased afterwards in Germany, it grew considerably in several countries until 2014 due to the Great Recession. The latter increase in employment in Germany in spite of the financial crisis and sluggish economic growth was driven by flexible working time accounts, temporary work agencies, wage moderation and the neoliberal workfare reforms that became operative between 2003 and 2005 (Burda & Hunt, 2011). Thus, the German employment miracle is mostly based on the expansion of atypical and precarious employment, especially part-time jobs (Holst & Dörre, 2013).

Welfare state expansion, full employment and intergenerational mobility

The expansion of welfare states may have increased intergenerational mobility in various ways by affecting the cost-utility considerations informing mobility strategies (Goldthorpe, 2007c). The expansion of the social security nets and rising real incomes in the phase of full employment may have increased upward mobility through stabilizing future prospects and reducing costs of sickness, disability or old age. In fact, secure expectations about future real wage growths may also reduce the opportunity costs of educational investment as the latter's impact on actual consumption levels wane. In contrast, the stabilizing effects of rising incomes in lower classes may result in rising opportunity costs of educational investment, especially if knowledge about returns on higher education is spurious and vague. In such a situation, parental investment strategies are highly dependent on two contrary motivations. Either parents aim at upward mobility or focus on the security of status maintenance (Breen & Goldthorpe, 1997). In a situation where educational institutions grow and the public sentiment is in favor of upward mobility to employ all available human resources, gatekeepers to higher education like teachers or admission officers are becoming more likely to lobby children and parents even against their resistance to allow for higher educational attainment. Additionally, the existence of near full employment renders the danger of downward mobility into unemployment meaningless for educational investment decisions. Consequently, upward mobility becomes more likely through the economic security enhancing of expanding welfare states. On the contrary, increasing unemployment may strengthen status attainment motives especially if educational success is uncertain.

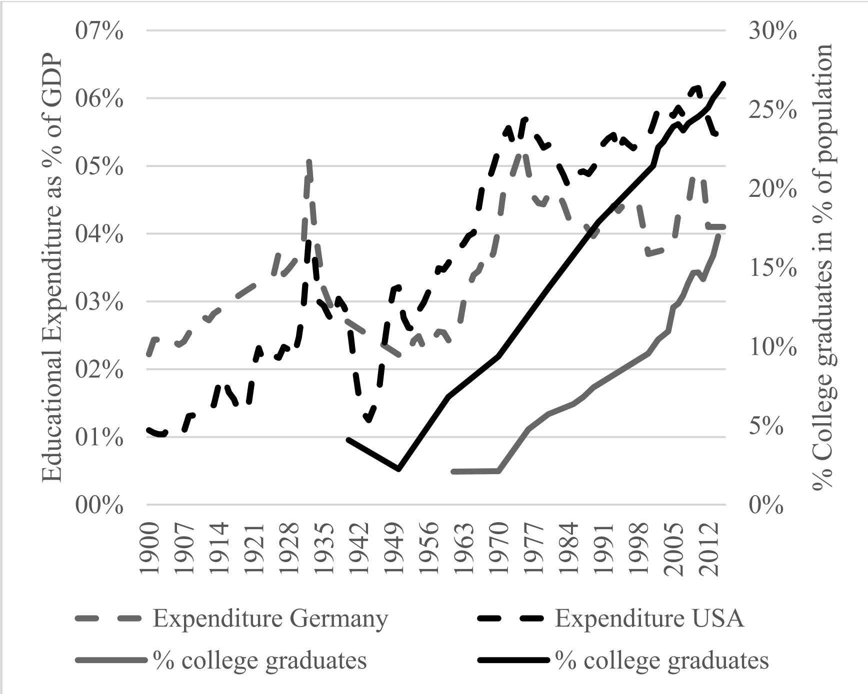
Finally, the expansion of the welfare state itself and specifically the expansion of the educational system can increase mobility through generating job opportunities, especially among the higher end of the occupational distribution. This will, of course, only increase mobility opportunities if educational attainment increases (which it did) and recruitment in the public sector is less selective with regard to social origins than recruitment in the private sector (DiPrete, 1989; DiPrete & Grusky, 1990). The rather impersonal recruitment practices in large bureaucracies are potentially more likely to be impartial – i.e. only if the taste for discrimination is not generally shared and reasons for statistical discrimination are limited – because initial screening of potential applicants is performed by personnel departments, which due to the lack of concrete knowledge about the performed tasks must rely on formal credentials and skill certificates to sort through applications. Thus, recruitment strategies might be more universal here than in smaller private establishments. Moreover, the increase of educational systems as part of expanding welfare states also results in more demand for teacher aides, teachers and professors, all positions that are solely reached through educational attainment. If the demand for qualified labor is high and public employers compete with private employers, it is likely that individuals with lower class backgrounds find abundant upward mobility opportunities, while individuals from higher classes either aim for the highest possible positions in the public service or forego it altogether in order to secure the more individualized career opportunities offered in private enterprises.

Educational expansion

If the creation of full employment and greater social security was an important source of welfare for the workers and their families, the increase of government expenditures on education was important to create prospects for intergenerational welfare, i.e. prospects for the future amelioration of families through educational investment. In almost all countries, educational systems expanded. Educational expansion entailed the creation of new schools especially in rural areas, universities, the abolishment or reduction of school and university fees, the centralization of curriculums, the downsizing of classes and decline of composite or multi-age classes, and the introduction of affirmative action and educational support programs for discriminated groups or low-income families (Breen et al., 2009). As a result, secondary and tertiary school enrollment and graduation rates rose virtually everywhere in the world over the last century (Meyer et al., 1977; Schofer & Meyer, 2005). Especially between 1950 and 1970, enrollment in primary, secondary and tertiary educational institutions increased rapidly on a global scale (Meyer et al., 1977). But also in the following decades, educational expansion increased massively (Meyer et al., 1992). Comparing different cohorts, it is obvious that educational attainment substantially increased in all classes and among both men and women in all industrialized countries (Breen et al., 2009, 2010; Hout, 2011).

The early expansion of the educational system can partly be attributed to the struggle for system legitimation in the Cold War era and the competition for economic advancement even though evidence for any direct relation between educational expansion and economic growth is rather mixed (Aaron, 1992; Meyer et al., 1992; Schofer & Meyer, 2005). On the individual level, however, it is undisputed that returns on higher education are high everywhere and over the life course, far outweigh the costs attached to attending schooling in terms of labor market returns (Psacharopoulos, 1994; Hannum & Buchmann, 2005).

Fgure 5: Government expenditure and educational attainment



Note: German data retrieved from Diebolt and Guiraud (2000 [2004]) for 1900-1996 and the Statistisches Bundesamt for 2000-2015. American data from US Census Bureau and the president's budget (expenditure) as well as US Bureau of Economic Analysis (GDP) retrieved via http://www.usgovernmentspending.com/; Data on college graduates from Statistisches Bundesamt (Germany) and the Integrated Public Use Microdata Series (United States) (Ruggles et al., 2015). Between 1950 and 1991 Germany denotes West Germany only.

While secondary and tertiary enrollment increased continuously over the 20th century, however, government expenditure on education as a share of national per capita GDP evolved more erratically (Figure 5). Public educational investment rose over the first half of the 20th century, only to decline substantially around World War II. It then increased substantially between the 1950s and 1970s as educational expansion accelerated. Since the mid-1970s, however, educational expenditures either remained mostly stable (United States) or even declined (Germany) even though college graduates still increased. The latter trends are observable in all G-7 nations for which comparable data is available (UNESCO, 2016).

While demographical reasons, i.e., the baby boomer generation, ought to be important for the explanation of national educational expenditures, the stagnating total educational expenditures did not keep pace with increasing tertiary enrollment (Shavit et al., 2007). Arguably, schooling environments may have been best in the phase between the 1950s and 1970s, when expenditure rose at similar paces as college graduation rates.

While the educational infrastructure expanded and ever more children from lower class backgrounds moved on to higher educational levels, the more important question is whether this change more strongly affected the chances of lower classes to attain education than it did for higher classes (Raftery & Hout, 1993). In essence, the question is whether class inequality of educational opportunity (IEO) declined or remained stable over time (Breen & Jonsson, 2005). Earlier cross-national comparative research found that there was little change regarding the influence of socio-economic background on educational attainment in 11 out of 13 countries, including the United States and West Germany (Blossfeld & Shavit, 1993). Studying the association between parental and children's educations across age groups in 20 countries including the United States, Pfeffer rejected models assuming uniform change based on statistical tests (Pfeffer, 2008, p. 551f.).[5] These results, however, have been questioned on empirical grounds. Breen and various coauthors find in a comparative analysis of class IEO in seven to eight European countries that the association between class origins and educational attainment decreased across birth cohorts of the 20th century among men and women (Breen et al., 2009, 2010). While class differences in educational attainment continue to exist, the authors can show that they are becoming smaller over time in almost all countries including West Germany (Breen et al., 2010). More specifically, IEO among men declined in all countries but Great Britain and the Netherlands among cohorts born before the end of WWII and remained mostly stable thereafter or, again increased, as was the case in Poland (Breen et al., 2009, p. 1500f.). Similarly, Pfeffer and Hertel report a decreasing association of class backgrounds and educational attainment among U.S. American men born between the mid-1920s and the mid-1930s and an increasing association thereafter relative to the first cohorts born before 1924 (Pfeffer & Hertel, 2015). Among European women, however, the association of social backgrounds and educational attainment seemed to decrease also across later cohorts (Breen et al., 2010, p. 39f.). Similarly, unpublished findings for American women show that IEO declined among women born between 1935 and 1954, but increased or remained at that

[5] In fact, Pfeffer found significantly decreasing intergenerational associations in Northern Ireland, Finland and Norway and an increasing association in the Czech Republic and Hungary based on the log-likelihood ratio test (Pfeffer, 2008, p. 551). However, the loss in parsimony did not outweigh the better fit according to BIC, so he chose to discard his findings in favor of a no-change model.

level in later birth cohorts. Why does educational expansion seemingly affect only selected birth cohorts in most countries? Arguably, it was exactly these cohorts which profited most from the post-WWII expansion.[6] Thus, the golden age of welfare capitalism after World War II might have had a strong impact on class differentials in occupational attainment by weakening the association of class backgrounds and class attainment (Blau & Duncan, 1967; Featherman & Hauser, 1978).

Educational expansion and intergenerational mobility

The general increase of educational attainment is likely to have increased upward mobility over the last century, or to be more exact, across consecutive cohorts born over the last century (Breen & Jonsson, 2005). The initial increase of IEO in some cohorts may have had a more positive influence on upward mobility than later similar levels because of overall lower levels of graduates. At later stages of educational expansion, graduates face a situation in which even higher educational attainment might have lost some of its signaling value as any single educational degree decreases relative to the overall available educational degrees of the same sort (Goldthorpe, 2014). In such a situation, social backgrounds may become a handy substitute for recruiters to select upon. That said, it would still be possible that expanding graduation rates result in higher aggregate mobility rates because the association between origins and destinations is lower the higher the educational attainment is (Hout, 1988; Torche, 2011). Against the signaling theory speaks the fact that such an effect on class mobility is likely to be limited due to the highly aggregated class schemes used. However, a weakening of the mobility inducing effect through credential inflation becomes more likely if higher social positions do not expand with the same pace as graduation rates, as seems to be the case in Spain (Marqués Perales & Gil-Hernández, 2015). Educational expansion may also affect mobility through growing educational homogamy (Blossfeld & Timm, 2003), which arguably fosters immobility. While two highly educated parents have more knowledge about the educational system than one, especially if they studied in different fields, increasing numbers of parents without any higher secondary or tertiary educational attainment may have a detrimental effect on the educational attainment of their children.

[6] Men of lower class backgrounds, arguably mostly through their participation in WWII and subsequent opportunities to study through the G.I. Bill.

The trilemma of welfare states in post-industrial societies

While welfare state expansion coincided with full employment and educational expansion, the following decades saw a consolidation of government social policy. Rising unemployment and ageing populations put increasing strain on welfare states as tax revenue declined and social expenditures increased (Pierson, 2001). After the industrialized countries entered a prolonged phase of stagflation in the late 1970s and 1980s, Keynsianism was increasingly replaced by neo-classical monetarism (Helliwell, 1988). Instead of counter-cyclical policies of deficit spending and full employment, governments increasingly favored price stability in order to cope with the mix of sluggish growth and inflation. Growing labor costs due to increasing taxation and insurance contributions necessary for financing the mature welfare states further limited employment growth, especially in Continental European states (Esping-Andersen, 1999; Esping-Andersen, 2000; Hemerijck, 2002). The increasing use of early retirement packages to limit the impact of de-industrialization by controlling the labor supply and appeasing unions in the face of mass layoffs further exhausted public budgets (Ebbinghaus, 2004). Consequently, public debt increased almost everywhere. Spending on interest payments as a share of the (still modestly growing) GDP more than doubled between 1970 and 1994 from 2% to 5% among G7 countries (Pierson, 2001, p. 91). To be sure, welfare state retrenchment was rather modest over the 1980s and 1990s, even in the extraordinarily hostile and anti-social political climate of the Reagan and Thatcher eras (Pierson, 1994, 1996). However, over the last two decades, deregulation of labor markets and liberalization of industrial relations affected nearly all industrial countries and significantly altered social stratification through increasing employment of policies of dualization and social exclusion (Esping-Andersen, 2000; Baccaro & Howell, 2011; Thelen, 2014).

In the 1990s, governments found themselves in what Iversen and Wren called the “trilemma of the service economy” (Iversen & Wren, 1998), i.e., governments had to choose whether they either favored fiscal discipline and earnings equality at the expense of low levels of employment growth (Continental European model) or employment growth and equality at the cost of deficit spending (Scandinavian model) or generating employment and upholding budgetary discipline while creating a low-wage service market (neoliberal model). While various trajectories were possible in the 1990s, the neoliberal model in tandem with tax reductions for high-income groups seemed the most promising way for various left wing governments in power at that time. In the mid-2010s, almost all states had favored a strategy of employment growth through decentralization of industrial relations and deregulation of labor markets at the expense of rising wage inequality (Emmenegger et al., 2012b).[7] Employment rates increased in all G7 countries except the USA between 1994 and 2009. Employment growth was strongest in Germany, France and Italy (6%) and weaker in Canada (4%) and the United Kingdom (2%), while employment decreased by 4% in the U.S. due to the Great Recession following the 2007 subprime mortgage crisis (Eichhorst & Marx, 2012, p. 80). These increases were mostly driven by employment growth in services and were accompanied by the increase of fixed-term contracts, part-time employment, increasingly precarious self-employment and the subsidization of low-pay work.

The rise in inequality and the dualization of societies

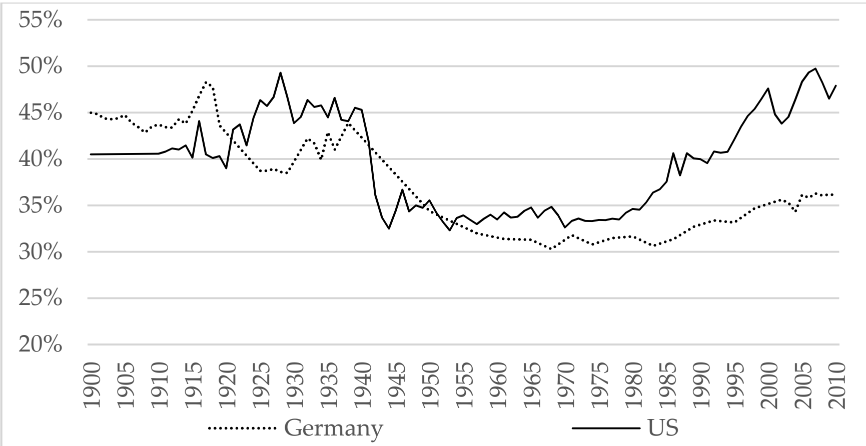
The transformation in the economic structure is intimately related to the change in income inequality over the last century. Although the basic story is well known (Piketty, 2014), Figure 6 establishes once again the tremendous decrease and rise of income inequality over the 20th century by plotting the share of total income obtained by the top income decile in various countries. In all countries, income inequality decreased substantially over the first 50 years of the 20th century and was lowest somewhere between the mid-1940s and the mid-1970s. Over the following decades, income inequality increased particularly in the United States, which was the most egalitarian nation at the dawn of the 20th century, but became the most unequal one at the end of it. While some of this increase in inequality is certainly related to increasing returns on education (Goldin & Katz, 2008), the above-average increase of top incomes (the 1%) also drives income inequality, especially in the English-speaking countries (Piketty, 2014). More sophisticated analyses of the U.S. and British increases in wage inequality over the last decades reveal that most of it is caused by increasing between-occupation inequalities (Mouw & Kalleberg, 2010; Williams, 2013).

Comparative analyses have further shown that national institutions are important in moderating the effect of globalization on (household) income inequality as measured by the Gini index (Lee et al., 2007). Moreover, industrial relations, for example, decentralization of the collective bargaining structure, or a stable or declining minimum wage arguably affect wage inequality by reducing the income share of middle and lower classes (Alderson & Nielsen, 2002). In effect, income

[7] Given the contemporary crises, it is hard to say whether this will lead to solid public budgets. Financial crises, increasingly frequent wars (Afghanistan, Iraq, Syria, North Africa) or "military deployments" (anti-piracy and anti-immigration missions), mass incarceration as a means of controlling superfluous workers, and the social and economic costs of rising inequality may render deficit spending a(n) (ideologically) necessary evil to achieve the domestic and international level of control which is needed to guarantee the freedom of property ownership.

inequality i is not only driven by increasing numbers of high-income "supermanagers" (Piketty, 2014) but also by collapsing unions and the subsequent individualization of pay bargaining coupled with the decline of the minimum wage, advantaging better qualified workers over less qualified workers (Freeman, 1993; Thelen, 2014, p. 37f.). Union density and coverage of collective bargaining declined strongly between 1970 and 2010 in the U.S. (by 58% and 56%) and in Germany (42% and 28%) likewise (Thelen, 2014, p. 35.). Consequently, income inequality increased quite dramatically also in Germany, resulting in a growing polarization of high-wage and low-wage workers (Giesecke et al., 2015).

Figure 6: Income inequality in the U.S. and Germany, 1900-2010



Note: The World Top Income database (Atkinson & Piketty, 2007; Atkinson & Piketty, 2010).

For adherents of the dualization thesis, the rise in inequality is the output (not only outcome) of social and labor market policies (Emmenegger et al., 2012a, p. 13ff.). The demise of the standard employment relations, active labor market policies coupled with decreasing cash assistance, as well as the growth of low-income substandard jobs increase the divide between the well-trained workers in primary labor markets with economic prospects and career stability, and less-skilled workers, frequently immigrants, women, the disabled or members of a discriminated minority, who are employed in dead end secondary labor markets with little chance of promotion and betterment (Doeringer & Piore, 1971; Deakin & Wilkinson, 1991). Moreover, these policies create labor markets in which employers can use substandard work arrangements and substandard remuneration to raise profits and, as a side product, create jobs especially in the low-productivity service segment (Oesch, 2006b). While the divide among workers increased, social policy changes additionally target labor market outsiders not only by stigmatizing means-tested assistance programs, but by active labor market policies which enforced the take up of even the worst jobs the post-industrial society has to offer (Lindbeck & Snower, 1984).

Dualization, rising inequality and intergenerational mobility

Arguably, the rising inequality resulting from polarization policies affected mobility in at least two ways. First, the relative income increase at the top of the income distribution allows parents to increasingly invest in their children's higher educational attainment and in enrichment activities (Vincent & Ball, 2007; Duncan & Murnane, 2011). Especially in countries in which higher educational costs increased, like in the United States (Roksa et al., 2007), the advantage gained by relative income increases should grant access to more investment opportunities for better-off parents. At the same time, increasing educational costs may raise the signaling value of the earned degrees by restricting the pool of new entrants from middle class families and thus increasing the returns to education for all those who can afford costly colleges. Hence, immobility within the highest classes is likely to increase (Mitnik et al., 2013). Second, thinning in the middle of the income distribution may decrease upward mobility flows through constraining available resources. However, with incomes increasing at the top, the opportunity costs of foregoing higher education may increase the pressure to take up loans for educational investment. In such a situation, low-income households and minorities, which rely more heavily on grants for their educational strategies and have limited access to credit markets, might suffer most (Carneiro & Heckman, 2002; Hout, 2005; McDaniel et al., 2011). In total, however, the lowest income families are less affected by the change in the distribution because they had already previously limited access to higher education.

2.2 Social mobility in industrial and post-industrial societies

From the cursory review of important economic and social changes, one thing is immediately evident: there are various reasons for intergenerational mobility to have changed substantially over the last one hundred years. The questions about mobility flows and societal openness, however, are more complicated. There are actually two explananda regarding social mobility and trends in social mobility which need to be treated separately (Goldthorpe, 2007c). The first explanandum is the question of how *experienced* mobility flows have changed over time. The second explanandum is to what extent societies became more open or closed, i.e. how group differences in experienced mobility changed, resulting in changing *relative mobility* chances. While both explananda are related, the one is not derivable from the other. Putting it differently, ever more people can experience intergenerational mobility without a change in the underlying relative chances. Consequently, the aforementioned expectations about the influence of social change on mobility have to be reformulated in order to address either one or both of the two different conceptions of social mobility. Before this task can be pursued, however, the conceptual differences and overlaps between both perspectives warrant a closer examination.

The first perspective focuses on mobility experiences of individuals and social groups and has a long tradition in mobility research (Sorokin, 1927 [1959]; Lipset & Bendix, 1959). The raw mobility flows between social backgrounds and current occupational positions are generally called absolute mobility (Erikson & Goldthorpe, 1992). The interesting thing about absolute mobility is that it is highly dependent on changes in the social structure. If the occupational structure, for example, changes between generations, absolute mobility is driven by these changes to the extent that origin positions become less available mobility destinations while other positions become more frequent for class attainment. Such forms of forced mobility are usually called structural mobility (Sobel et al., 1985). To be clear, whether or not mobility is forced by structural change is not a matter of normative judgment, nor does it imply that individuals have not suffered in the cause of reaching the respective position. The term merely illustrates that mobility has been necessary due to structural differences between prior and actual positional distributions.

While absolute mobility flows are driven by structural transformations, they also change if social barriers become more or less permeable, i.e. if the circulation between social positions increases. Such mobility patterns are frequently called exchange or circulation mobility because they pertain to the exchange of positions independent of structural change. In practice, such mobility would presuppose downward and upward mobility as individuals from lower origins take higher positions and individuals from higher backgrounds are downwardly mobile. While absolute mobility is driven by structural and exchange mobility, there is no way yet to disentangle both elements of mobility without reducing the case to a special case (Sobel et al., 1985).

Here is where the second perspective comes into play. While circulation mobility cannot be measured independently in terms of absolute flows, it can be measured relative to other classes net of structural change. This methodologically more complex perspective is usually taken if relative intergenerational mobility is studied (Goodman, 1965). With the change of the perspective, it becomes possible to consider trends in the openness of societies and their permeability for mobility. However, this possibility comes at a cost. The studied phenomenon ceases to be the mobility process itself but becomes the aggregate outcome of the underlying class relations that produce the degree of relative inequality in mobility chances (Breen & Jonsson, 2005, p. 230). While relative mobility rates have been criticized for their degree of abstraction, they allow for the interpretations of fluidity, i.e. the degree of social permeability, in terms of the classes and differences between the classes, hence they put emphasis on the relational aspect of stratification. Before transferring the above made mobility expectations into explicit statements about changes in terms of either absolute or relative mobility rates (or both), a short review of the dominant explanatory model provides some benchmarks against which these expectations can be judged (Erikson & Goldthorpe, 1992, pp. 1-27).

Industrialization and increasing universalism

The first theoretic tradition in the study of social mobility is derived from modernization theory. With the ongoing division of labor and specialization in the economic system of modern societies, selection processes necessarily become more universalistic (Parsons, 1940). While in traditional societies ascriptive characteristics like lineage, place of birth or economic property are important for accessing higher positions, the modernization theory posits that modern societies are more likely to employ rational, bureaucratic selection mechanisms to sort individuals on basis of their skills and capacities (Moore, 1966). From this perspective, stratification simply reflects positional differences in functional importance and different costs associated with achieving the skill set required for a position (Davis & Moore, 1945). Consequently, social origin characteristics lose their relevance for occupational attainment and social mobility is likely to grow with ongoing rationalization (Blau & Duncan, 1967). In a similar vein, but emphasizing the role of technological advancement and the role of economic change, Bell argues that selection in post-industrial societies is essentially meritocratic. “The post-industrial society, in its initial logic, is a meritocracy. […] Without those achievements [F.H. technical skills and higher education] one cannot fulfill the requirements of the new social division of labor” (Bell, 1973 [1999], p. 409).[8]

[8] The liberal-conservative Bell, however, also saw that meritocracy has to be continuously defended against what he, alongside so many other white male academics, considered a danger to the achievement selection system. Both affirmative action programs and policies directed at creating equality of

The link between technological development and growing social mobility has been most clearly stated by Treiman (1970, p. 217ff.). Treiman sets out with various propositions to underline the claim that industrialization increases social mobility. Industrialization coincides with the differentiation of the occupational structure, a decline of agricultural and manual employment relative to non-manual work, growing educational attainment and higher wages, as well as lower income inequality. Because all of these characteristics tend to increase with the level of industrialization, the process of stratification or intergenerational mobility differs between societies in different developmental stages. Treiman assumes that the influence of social background on educational attainment decreases, whereas the influence of education on occupational attainment increases with the degree of industrialization. The former is driven by the growing knowledge about educational possibilities and the socialization effect of prolonged educational attainment. The latter results from the increasing demand for skills due to technological advancement. At the same time, more universalistic recruitment strategies belittle the net effect of social origins on occupational attainment, not only because of the selection process but also because geographic mobility, urbanization and a shared mass culture favor individual merits over ascribed properties derived from belonging to an ethnic or social group. Finally, the greater variation of accessible jobs and their continuous upgrading through industrialization increases mobility through the creation of new and better working opportunities.

In accordance with the industrialization theorem and the aforementioned stylized facts of the changing societies, we may argue that the rapid technological development, in addition to the occupational structural change and the rise in educational attainment, increased intergenerational mobility over the last century. Regarding the two different explananda of absolute and relative social mobility, Treiman clearly argues in favor of linearly increasing upward mobility, as well as increasing relative mobility chances as the association between social backgrounds and class attainment declines, especially for individuals with agricultural and manual backgrounds due to increasing meritocratic selection and declining differences between individuals. While mass media and increasing educational attainment enable individuals to get rid of their rural working class habits, geographic mobility eliminates the locally confined knowledge about the social upbringing. Thus, industrialization and, in fact, post-industrialization tend to linearly increase both absolute upward mobility and relative upward mobility chances.

conditions rather than equality of opportunities were risky in light of the functional imperative of meritocratic selection in post-industrial societies.

The trendless fluctuation theorem

The no-change theorem of trendless fluctuation dates back to the most comprehensive early study of absolute social mobility by Sorokin (1927 [1959]). Studying mobility across several historic and current societies, Sorokin finds that absolute mobility fluctuates without trend, belying the predictions of unidirectional and evolutionary modernization theories. Assuming generality of this pattern, Sorokin posits that it is "the factor of dissimilarity between parents and children [that] causes a permanent stream of the vertical circulation" (Sorokin, 1927 [1959], p. 366). In other words, the less than perfect parental determination of offspring ability and social selection processes result in circular mobility flows. A broad commonality between absolute mobility flows across countries was also found in a comparative study of six industrialized countries (Lipset & Bendix, 1959). Nearly two decades later, this finding was questioned by Featherman, Jones and Hauser (1975), henceforth FJH, who compared absolute and relative mobility in the United States and Australia and reviewed several similar studies from Europe. While their results did not confirm the similarity of absolute mobility, they warranted a re-formulation of Sorokin's account of trendless fluctuation. Contrary to Lipset and Bendix, who only used three occupational classes, FJH found that absolute mobility differed between the countries mostly due to historically grown country-specific occupational distributions. In their analysis of relative mobility chances, however, they found few cross-country differences. Accordingly, they conclude that relative mobility is the same between countries and within countries across time points. FJH further speculate that this cross-national and inter-temporal similarity results from the shared institutional characteristics of capitalist societies, i.e. the nucleus family and a market economy with its rather general stratification order by property and abilities.

The thesis of similar and stable relative mobility chances has been extensively validated by the most authoritative comparative analysis of social mobility. In *The Constant Flux*, Erikson and Goldthorpe (1992) study absolute and relative social mobility rates in the early 1970s in 12 industrialized nations including the United States, Japan and Australia. In their analysis of absolute mobility flows, they document strong differences between the 12 nations. These differences, they argued, are mostly attributable to the different timings of industrialization and urbanization or revolutionary policies following the formation of socialist governments. Much in line with FJH, Erikson and Goldthorpe cannot confirm any claim about the similarity of absolute mobility patterns. However, their findings also indicate that relative mobility chances, though broadly similar between nations, differ due to national idiosyncrasies, hence rejecting the strong claim made by FJH. In fact, they need to fit several effects for country-specific differences in mobility chances in order to make their topological model fit the mobility data. Nevertheless, their findings clearly indicate a strong resemblance between the relative mobility chances across countries despite large differences in absolute mobility patterns. Thus, they confirm the FJH hypothesis in a weaker form, stating that relative mobility chances are mostly constant in time (except in Sweden and France) and that all nations share a common level of social fluidity (Erikson & Goldthorpe, 1992, pp. 94-101).[9]

These conclusions are not corroborated by a more recent analysis of social mobility in European countries. Based on data from 1970 through 2000, Breen and Luijkx (2004) found in their cross-national comparative analysis of 10 European countries and Israel that neither the commonality of social fluidity patterns nor their stability can be unambiguously confirmed (Breen, 2004a, p. 73). In fact, nations differed quite strongly with regard to aggregate relative mobility chances, i.e. their openness. Moreover, fluidity tends to increase in all countries except Britain, where fluidity remains remarkably stable. With regard to absolute mobility rates, on the contrary, they did find increasing commonality of absolute mobility patterns and judged this finding as the outcome of the joint economic development commencing after the sectoral change from agriculture to industrial and post-industrial societies was far advanced in nearly all countries under study. Similarly, the more detailed country analyses clearly showed that social fluidity increased in various analyzed societies, mostly due to historical transformations in the institutions that affect relative mobility (see e.g., Müller & Pollak, 2004). Other recent comparative analyses which employed comparable (log-linear) methods also found significant differences between countries. Hout and Beller demonstrated that social fluidity differs between countries according to their welfare regimes (Beller & Hout, 2006b). And, in fact, Erikson and Goldthorpe find significant differences in the fluidity level between all analyzed nations, but deem it substantially too little and not consistently interpretable in terms of differences in levels of industrialization to change their final conclusions (Erikson & Goldthorpe, 1992, p. 385f.). Arguably, it is not so much industrialization per se that shapes social fluidity differences, but the way country-specific institutions, i.e. welfare states, mediate the influence of education on the association of origin and destination classes (Beller & Hout, 2006b, p. 362).

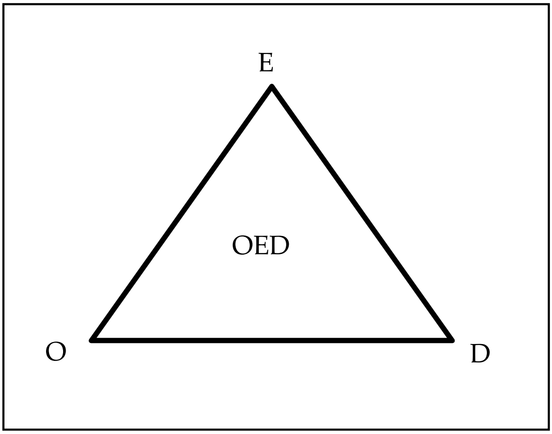
[9] Contesting findings (Ganzeboom et al., 1989) have been forcefully and compellingly rejected on grounds of low data quality and comparability (Erikson & Goldthorpe, 1992, pp. 53, 100-102). More recent comparative analyses (Yaish & Andersen, 2012) which found that the association of parental and individual status is lower the more developed a country is, are neither methodologically comparative nor generalizable due to the limited number (20) of studied countries (Snijders, 2005; Bryan & Jenkins, forthcoming).

While the final verdict has yet to be reached about the future of the similarity thesis, and a general explanation for the observed pattern of change in relative mobility rates is still missing, the expectations that are derivable from this research tradition can be straightforwardly stated. Absolute mobility patterns are likely to change driven by the different timing of occupational structural change. The findings suggest that upward mobility continuously increases through the upgrading of occupational destinations. There is no reason to expect that changes in upward, downward or immobility rates are anything other than short-term fluctuations related to idiosyncratic nation-specific policies. In other words, absolute mobility rates and their change are explainable "primarily by reference to factors exogenous rather than endogenous to processes of class mobility" (Goldthorpe, 2007c, p. 157). With regard to social fluidity, no marked change over time is expected because the system of stratification which creates the differential mobility chances remains intact for most of the observation period (Erikson & Goldthorpe, 1992, pp. 391-392; Goldthorpe, 2007c, p. Ch. 7). If change were to happen, it is likely to point towards increasing relative mobility.

2.3 Same, same but different?

Before the expectations about potential mobility effects derived from the review of social changes can be compared to the theoretic predictions derived from the industrialization theorem or the trendless fluctuation hypothesis, a third alternative about the socio-political influence of social change on social mobility will be formulated. The argumentation can be visualized with the well-known mobility triangle depicted in Figure 7 (Goldthorpe, 2007c). Absolute as well as relative mobility is theoretically decomposable in the three independent factors that affect mobility: class origins (O), educational attainment (E) and class destinations (D). Changes might affect the origin-specific access to education (O → E), the link between education and occupational attainment (E → D) or the net relation between social backgrounds and class destinations (O → D).

Figure 7: Mobility triangle



Note: For example Goldthorpe (2007c, p. 160)

Finally, the interaction of all three factors might additionally affect the association between origins and destinations to the extent that the ED link might differ with regard to origins or the OD link might differ with regard to education. For the sake of brevity, the underlying relation to the OED triangle will remain implicit and will not be formalized.[10] An explanation for class differences in mobility chances and a description of class-specific mobility expectations is elaborated further below after the important conceptual decisions are made (Ch. 4.4).

Earlier in the text I argued that industrial change, the feminization of work, the welfare state expansion and its final dualization might have affected intergenerational mobility. Table 1 summarizes the expectations separately for absolute mobility flows and relative mobility chances. Of course, there is no a priori reason for expecting that all societies quasi-naturally evolve from an agricultural to an industrial and a post-industrial society. Although this has been the trajectory of many Western societies, the historical context which made such a trajectory likely ceased to exist at some point in the 20th century. Thus, non-Western contemporary societies may enter the post-industrial era without having to industrialize first, remain mostly agricultural or, most likely in the case of the least developed coun-

[10] A clear description of each link and a review of theories explaining or assuming change in each of the legs can be found in Pfeffer and Hertel (2015) or Goldthorpe (2007c, pp. 162-163).

tries, experience locally limited industrialization and post-industrialization impulses which are more related to external factors with detrimental effects on the living conditions of vast parts of the population (Davis, 2007).

Changes in absolute mobility flows

In line with the industrialization thesis, it is likely that *industrial change* increases absolute mobility rates substantially over time. The transformation of largely agricultural to industrial societies fosters upward mobility simply because of the decline of the lowest positions of sharecroppers, farm laborers and the simultaneous increase of the urban manual workforce. Accordingly, downward mobility is likely to decrease because the floor of the class distribution is gradually increasing. While the alienating rhythm of manual work, in particular unskilled work in the food industry as packers or graders, might have a detrimental impact on life satisfaction and the subjective identity, the capacity for collective bargaining and the higher productivity of industrial work vis-á-vis agricultural work will eventually result in higher living conditions in these positions far above the level of the agricultural laborer. Horizontal mobility, understood as trajectories between agricultural, industrial manual and post-industrial service occupations, is likely to rise due to the sectoral replacement while immobility declines with increasing work opportunities. The transition to a post-industrial occupational structure is similarly likely to increase upward mobility flows through the upgrading of the occupational structure. At the same time, the bifurcation of the occupational structure into higher and lower non-routine positions arguably also raises downward mobility opportunities, especially for the lower administrative workers which are prone to fall victim to rationalization through automation. Like with the other sectoral transition, immobility is likely to decline, whereas horizontal mobility arguably increases.

Table 1: Potential relation of social change and intergenerational mobility

	Absolute Mobility				*Relative Mobility*
	UP	DW	HZ	IM	
Industrial change					
▪ Agriculture → industrial	++	--	++	--	0
▪ Industrial → post-industrial	+	+	++	--	(+/0)
Feminization of work					
▪ Influx of women	++	+	++	--	+
▪ Feminization of work	-	+	0	(+/-)	+
Welfare state expansion					
▪ Full employment	++	-	0	(+/-)	++
▪ Educational expansion	++	--	0		+
Dualization of welfare states					
▪ Dualization	-	++	0	+	-
▪ Rising inequality	-	0	0	++	-

Note: + indicates increase, - decrease, 0 no expected change, signs in brackets indicate partial changes which are very much dependent on the welfare arrangement. Predictions about absolute mobility flows are differentiated in upward (UP), downward (DW), horizontal (HZ) mobility flows and immobility (IM).

The effects of the *feminization of work* are twofold like the phenomenon itself. The influx of women into the labor market might increase absolute upward mobility along the lines of the gendered labor market. As argued above, women may increasingly concentrate on careers outside traditional female occupations once a critical mass of women has entered the labor market and torn down gender barriers resulting in increasing upward mobility. At the same time, however, women are also likely to partly replace men in the lower clerical and manual positions, opening up routes for men to climb up the positional ladder. In contrast, downward mobility may increase, in particular if we compare women's positional achievement with their fathers' class, because women that enter the labor market from high origins might still find it difficult to overcome especially persistent gender barriers, e.g. in the professions or skilled manual work, and move to lower positions, e.g. into semi-professions or unskilled manual positions. Moreover, gender segregation increases horizontal mobility and decreases immobility once women increasingly enter the labor market, in particular if fathers' occupations are taken as a reference point. The feminization of work through the generalization of substandard employment relations arguably constrain upward mobility and increase downward mobility by limiting the economic prospects of precarious middle and lower classes. Finally, the degree to which immobility changes, very much depends on the degree of growing wage and employment insecurity among social backgrounds.

The *welfare state expansion* arguably affects absolute mobility mainly in two ways. First, full employment offers ample opportunities for current workers and labor market entrants to change employers. Equipped with greater power than normal in the generally asymmetric relation, workers are more likely to find better positions than in times of excess supply and scarce demand for labor. Accordingly, downward mobility might be reduced. Whether or not immobility decreases depends on the effect of future prospects in the respective classes. If working conditions continually improve and real wages increase, upward mobility may already be achieved by immobility without having to leave the familiar context in which individuals grew up. Secondly, the expansion of educational institutions increases upward mobility by allowing access to higher positions via educational attainment for increasing numbers of individuals and likewise creates positions within the educational system which might further offer upward mobility opportunities. In contrast, educational expansion is unlikely to result in increasing downward mobility in the aggregate. Educational expansion may also lead to greater horizontal mobility as the children of managerial elites leave the industrial class hierarchy and use educational attainment to attain entrance into the growing professional classes. While educational expansion may especially benefit higher classes by rendering immobility strategies via educational attainment more successful through a horizontal diversification of educational opportunities, it is likely to decrease immobility at the bottom of the class distribution. Whether or not these trends offset themselves depends on the relative impact of educational expansion at the bottom and the top of the distribution.

The *dualization of welfare states*, finally, might decrease upward mobility flows by reducing policies which, like affirmative action, allow students from lower classes to attend costly educational institutions. At the same time, the deterioration of social security programs for the (lower) middle classes might result in increasing downward mobility as families became more sensitive to detrimental life course events like unemployment, sickness or disability. Due to the same reasons, immobility is likely to increase in the higher well-secured and increasingly less precarious positions. Rising inequality itself might reduce upward mobility flows by relatively increasing the costs to achieve the educational prerequisites of upward mobility. At the same time, rising inequality is likely to fuel immobility in higher and lower classes.

Changes in relative mobility chances and aggregate social fluidity

The degree to which *industrial change* affects relative mobility patterns and overall social fluidity highly depends on whether the transition from agricultural to industrial societies affects the relation of differential mobility chances. Because industrialization does not affect the reproduction strategies of higher classes, it is unlikely to expect changes here. However, the common practice of studying agricultural and manual workers in unison might lead to greater fluidity if mobility strategies in urban areas are in fact positively affected by more frequent contacts with educational institutions and greater labor market opportunities. In that case, the mobility propensities within the lowest classes might grow relative to other classes with growing shares of industrial workers replacing agricultural workers. Similarly, mobility chances may increase in the transition from industrial to post-industrial economies if, and only if, fluidity levels among the post-industrial pink collar laborers are higher than that of blue collar workers. However, this increasing fluidity due to changing compositions of classes might at the same time be offset by increasing fluidity in the higher ranks, as lower grade non-manual workers also become relatively more likely to enter higher post-industrial classes. Consequently, relative mobility rates may increase or remain stable.

Whether or not relative mobility rates are affected by the *feminization of work* is very much unclear. Because fluidity is separately studied for men and women, there is little reason to believe that the pure increase of women in the labor market affects the class differentials in mobility propensities. If, however, employment relations become detrimental with greater numbers of female workers in a given class, a compositional effect could appear across time increasing fluidity. This is mainly because at higher levels of female membership, the class becomes a less desirable destination among men and, everything else being equal, fluidity might increase.

Welfare state expansion may have the clearest effects on relative mobility chances. While full employment reduces the risk of investing into upward mobility strategies by rendering failure much less costly, it also improves economic prospects and decreases the opportunity costs of educational investments in terms of actual consumption. Consequently, especially lower classes are likely to increase their mobility propensities, hence, ceteris paribus, increasing social fluidity. Similarly, educational expansion may affect relative mobility chances by reducing the class differentials in educational attainment through lower educational investment costs. The relative effect, however, is conditional to what extent lower classes gain access to higher educational attainment relative to the increasing participation of higher classes (Hout, 2006b). The important point is that at the time in which both phenomena, i.e., full-employment and educational expansion, fall together, fluidity is most likely to increase.

Dualization and the resulting rising inequality, finally, might affect social fluidity in different ways. In lower classes dualization might affect economic prospects and the ability of parents to invest in their children's educational and occupational attainment. At the same time, the existence and potential increases of outsider populations increase the risk perception of downward mobility possibilities and render ambitious mobility strategies more risky. In fact, the status maintenance motive should become stronger with higher economic and moral barriers being attached to the outsider population. To the extent that immobility strategies become more likely at the bottom of the class distribution, they are also increasingly attractive in higher positions. Consequently, fluidity might decrease overall. Rising economic inequality might additionally constrain upward mobility strategies by increasing the costs of educational investments and, due to relatively lower household incomes, increase the opportunity costs of prolonged education. In contrast, it is not likely that the reduction of social rights will have any effect on higher class immobility propensities which generally command enough resources to make up for the higher risks. In fact, heightened fears about failure in the educational system may additionally motivate parents to do anything possible to guarantee their children's class reproduction.

Different, different but same?

All of these trends might, of course, coincide and reinforce or attenuate each other. While the simultaneity is a problem for identifying the right interpretation in case we observe change in mobility, some changes (full employment, dualization, inequality) fall into distinctive periods of the last century and arguably are constrained in their effect on fluidity of particular cohorts. These trends, however, are clearly at odds with the optimistic expectations derived from the industrialization theorem *and* the trendless fluctuation hypothesis. At their core, my assumptions carry the idea that changes in absolute and relative mobility can have the same causes, although the way they affect either absolute or relative social mobility differs according to the respective underlying logic. Because some of the aforementioned changes did happen in various different states at the same time, we would further expect that fluidity trends across those countries are similar and maybe even converge. A basic theoretical framework which might link relative mobility to the underlying institutional formations might be derived from the adaptation of a concept from research on educational inequality.

The starting point for a theorem of change in relative mobility rates is the general stability of fluidity. Because of the quite persistent effects of class situation on life chances, it makes sense to think of the stratification order as at least rudimentarily stable across time and relatively similar between countries if they share the same primary stratification dimensions of property, skills and arguably authority relations (Featherman et al., 1975; Erikson & Goldthorpe, 1992; Wright, 1997). In fact, only against the background of relative stability does it make sense to argue in favor of systematic and politically driven changes. To explain those changes, I adapt the theorem of *maximally maintained inequality* (MMI) for the explanation of fluidity. Raftery and Hout (1993) employed this concept in the study of inequality of educational opportunity. Studying transition rates in the Irish educational system across several educational levels, Raftery and Hout found that educational equalization at lower educational levels can coincide with constant inequalities at higher educational levels. To explain this pattern, MMI assumes that class inequalities of educational opportunities, i.e. class differentials in educational attainment, do not automatically weaken if transition rates between primary, secondary and tertiary education increase because enrollment expansion on each level caters to the educational demands of all classes to the extent that relative inequality of educational opportunity (expressed in odds ratios) can remain stable over time. They argue that educational equalization, i.e. the decline of the association between social backgrounds and educational attainment, only increases if the demand of higher classes for a given educational transition is saturated (near 100%) so that any further expansion of enrollment at that level benefits exclusively lower classes. MMI fits to the pattern of educational expansion and persistent origin class differentials in the transition to higher education in Britain, West Germany, Switzerland, Italy, Poland, Hungary, the Philippines, France, Japan, Russia, Scotland, Spain, the former Czechoslovakia, Israel, Australia and Taiwan, but failed to explain the existing social selectivity in track choice in the almost universal secondary education in the United States (Hout, 2006b). Facing the changing tracking system within American schools, Lucas (2001) generalized MMI to *effectively maintained inequality* (EMI) by suggesting that high class parents “secure for themselves and their children some degree of advantage wherever advantages are commonly possible” (Lucas, 2001, p. 1652), hence freeing maximally maintained inequality from its link to quantitative changes in enrollment. The difference between EMI and MMI is that even if saturation of a given educational level is reached, higher classes may still maintain their advantage by attending qualitatively different tracks, vocational training, universities or fields of study. Thus, EMI adds a qualitative dimension to the quantitative dimension of MMI to explain persistent inequalities.

In its most general form, EMI states that higher classes will utilize whatever resources are at their disposal to secure the highest class positions. Because the concept is relational, this means that even if occupational upgrading or educational expansion or declining wage dispersion will affect mobility strategies “from below”, higher classes will still try to evade the equalization of opportunities by pursuing more prestigious education, bequesting social networks or attaining higher positions within the same class. In terms of social fluidity, that means that societies only become more open in times in which a certain degree of saturation is achieved across generations for the strategies “from above” to maintain class positions. Only then will the potentially fluidity-increasing effects lift relative mobility chances also in the bottom classes and, ceteris paribus, result in higher permeability of the class structure.

Applying MMI/EMI to relative mobility, we might expect that the expectations derived in Table 1 mostly offset each other to the extent that stability or maximally maintained inequality is indeed the primary description of social fluidity (Erikson & Goldthorpe, 1992; Breen, 2004a). However, social fluidity might have increased in the period between the 1950s and 1970s due to the deliberate policy decisions which resulted in educational expansion *and* full employment. While educational expansion allowed even the less able from higher class backgrounds to attain higher education, expanding welfare states and constant economic growth allowed the highest classes to secure reproduction through the labor market. Thus, the equivalent to enrollment saturation was reached through high levels of class reproduction. At the same time, both the expansion of the educational institutions and the more favorable labor market conditions might have, in additional to the saturation at the highest levels, increased fluidity from below by not only reducing inequality of educational opportunities but also by reducing the interaction between social backgrounds and the association of education and class attainment. In other words, full employment created a situation in which the taste for discrimination in terms of class backgrounds is too costly to uphold. In later or earlier periods where one or both of these conditions were not met and other trends like dualization or the feminization of work might have even increased the boundaries between lower and higher classes, fluidity may not markedly change.

Therefore, the underlying idea is that the change in the institutional context may in fact affect relative mobility as much as it can affect absolute mobility. While absolute mobility changes in direct response to structural changes, it will only change if structural changes jointly affect the change of mobility chances differently in the highest and the lowest classes. The task ahead is to study intergenerational mobility in the United States and Germany over the last century. While the hypotheses and assumptions formulated in this chapter are nothing other than speculation until empirically tested, they are developed here in order to make sense of other findings than those expected by either the industrialization or the no-change hypotheses.

Before the study of intergenerational mobility can commence, however, one conceptual point needs to be addressed first. The described societal change that happened over the last century was by any account tremendous. However, the dominant paradigm of social mobility research is that societies hardly grew more open. This contradiction may be because any change short of a revolution cannot alter the inequality relations which result in fluidity. However, it could also result from the way class is measured in contemporary stratification research. Thus, conceptual decision in the following part will precede the actual study of social mobility.

3 Class and intergenerational mobility in contemporary societies

The foregoing introductory section singled out two curiously opposing societal developments that are hard to reconcile with each other. A massive occupational structural transformation coincided over the last century with a remarkable stability of relative mobility rates. As I have argued at the end, any finding of change but also stability in the relative openness might result from a changing composition of the class structure. By any means, the above reviewed opposing trends provoke a more considerate study of structural change and social mobility than has been previously undertake One way to avoid such an ambivalent situation is to employ an operationalization of the realm of social positions which actually allows to differentiate shrinking from growing positions on similar vertical levels. Before trying to create a new stratification scheme from scratch, however, this chapter will review the most prominent operationalizations of the realm of inequality that have been employed for the analysis of occupational change or in social mobility research to explore whether available schemes are up to the task. The aim is to single out conceptualizations which allow to study intergenerational mobility accounting for horizontal and vertical differences between social positions. By horizontal differences, I mean sectoral differences between agricultural, industrial and post-industrial positions. n. Such a study will be undertaken in the following chapters with the aim of developing a new way to operationalized social inequality for the study of intergenerational mobility and beyond.

3.1 Gradational concepts of social inequality

Social mobility can be studied from at least three perspectives. Each perspective is founded in its own theoretical understanding of social inequality and entails distinct methodological choices. In the following, I will review gradational, disaggregated and aggregated class approaches towards inequality. Each of the three accounts of social inequality has a – more or less – coherent theoretical foundation, operationalization and set of methods for the analysis of social inequality in general, and intergenerational mobility in particular. Following sociological classics,

F.R. Hertel, Social Mobility in the 20 th Century,
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each account employs occupations as indicators for social position. Thus, occupations are not only important to distinguish between social groups with regards to their market conditions (Weber) or locations within the social relations of production (Marx), but they are also crucial with regards to the their influence on the process of socialization (Durkheim).

To answer questions pertaining to the relationship between occupational structural change and social mobility, we need to employ a conceptualization of the inequality space which is rooted in the occupational structure. The scheme through which I measure individual social position and parental position must further horizontally differentiate between contracting and expanding class positions in order to disentangle structural change and social mobility. Finally, the applied scheme of social positions must account for the immanent vertical differences in contemporary societies. Understanding social mobility is neatly coupled to the understanding of positional inequality because the intergenerational transmission of positions is to a large degree dependent on the various assets parents can or cannot grant to their children. At the same time, the institutional environment in which individuals grow up largely determines which parental resources can be effectively used for mobility strategies. In the following, I will therefore discuss each of the inequality conceptualizations with regard to their ability to differentiate vertically and horizontally between occupational positions.

While the most important or most recent class accounts are covered in this very selective review, one well known approach is excluded: Bourdieu's conceptualization of the social space (DiMaggio, 1979; Bourdieu, 1984). Bourdieu's approach has been widely influential in stratification research (e.g., Lamont, 1992, 2000; Vester et al., 2001; Savage et al., 2013b) although it did not remain uncontroversial (Goldthorpe, 2007a). While it would have been desirable to use a Bourdieusian account of class for the analysis of social mobility, a few considerations discouraged such an approach. Bourdieu's dense conceptualization of class based on the homology of preferences and positions in the social space is especially useful for the study of social inequality within a clearly confined space, like a country with its historically grown institutions and power structures. However, it is hard, if not impossible, to employ his apparatus in a comparative analysis without losing its most genuine depth of analytical reflection that is able to uncover the most intricate modes of inequality generation and reproduction. In fact, all the recent studies of the social space á la Bourdieu were strictly national enterprises which focused mainly on the description of the class structure and its transformation (see e.g., Vester et al., 2001; Savage et al., 2013a). Under the impression of the first wave of U.S. studies of educational inequality and cultural consumption using Bourdieu's concepts, Lamont and Lareau vividly warned against a direct adaptation of concepts conceived for French society and instead argued in favor of a deliberate redefinition of the concepts for the American context (Lamont & Lareau, 1988). Lamont's (Lamont, 1992, 2000) two monographs which apply a comparative approach are truly commendable in the way that they map the salient symbolic boundaries within and between the working and upper classes in the United States and France. A dissertation project, however, is necessarily confined to less ambitious dimensions, especially if it does not exhaust itself in the substantial analysis of mobility but also devotes space and time to the derivation of an optimal construct for doing so. Therefore, I decided in favor of less demanding conceptualizations of the inequality space than the one proposed by Bourdieu.

The following account of opposing conceptualizations for occupation-based positional social inequality has to be read against the background of an influential scientific discourse about the validity of social class. Throughout the 1990s, conservative social scientists forcefully argued against inequality research in terms of classes (Clark & Lipset, 1991; Clark, 2003). Much like Giddens or Beck, the authors questioned the validity of class analysis for the most developed Western capitalist nations (Beck, 1992, 1994; Giddens, 1994; Atkinson, 2007). This call was hardly breaking news. Liberal sociologists arguing with Marxists about the reasons and developments for modern day inequality had in fact long foreseen a future in which classes would lose significance for identification, collective action and stratification (e.g. Bell, 1973 [1999]). However, when Lipset and Clark started the discussion by diagnosing the death of class (DOC) with the description of class as an "outmoded concept" for sociological inquiry, a fierce but productive dispute began between DOC advocates and mostly non-Marxist class analysts. To varying degrees, DOC scholars argued that deindustrialization, gender equalization, economic growth, rising affluence or technological development weakens hierarchies and strengthens individualism and markets in contemporary societies, which results in the diminishing significance of class for educational inequality, voting, social mobility and so on (Clark & Lipset, 1991; Pakulski & Waters, 1996; Kingston, 2000, 2006). The debate not only demonstrated that class is still an important indicator for social advantage, but also produced several new contributions on how class works, and contested dominant class schemes which will inform the following conceptual discussion of how to best measure economic inequality within mobility research (Esping-Andersen, 1993; Breen, 2004a; Oesch, 2006b; Goldthorpe, 2007c; Grusky & Weeden, 2008; Lareau & Conley, 2008).

Functionalist theory and gradational inequality

Gradational accounts differentiate social positions with regards to their location within a gradational and frequently unidimensional hierarchy (Wright, 1979).

From this perspective, the inequality space is a continuum in which salient social differences can be continuously measured by e.g., income, status or prestige differentials (Duncan, 1961; Hodge et al., 1964; Siegel, 1971; Treiman, 1977; Ganzeboom et al., 1992; Hauser & Warren, 1997). One of the most important fields of gradational studies is status attainment research (Blau & Duncan, 1967; Featherman, 1971; Kelley, 1990; Warren & Hauser, 1997).

While some authors advertise gradational scales merely to “describe people in terms of occupational characteristics”, functional theories understand social inequality itself as gradational (Hauser & Warren, 1997, p. 184). In the latter perspective, prestige and status are derived from the importance of occupational roles for the functioning of societies (Parsons, 1940, 1970, 1971). Individuals who live up to the normative demands of the cultural system obtain higher rewards in terms of status and income. Status is determined, in Parsons’ own words, “on the basis of achievement within an occupational system which is in turn organized primarily in term of universalistic criteria of performance […]” (Parsons, 1940, p. 852). Thus, gradational accounts frequently assume that stratification is driven by meritocratic principles.

Similarly, Davis and Moore (1945) argue that economic inequality between occupations is a universal feature of differentiated societies because it reflects differences in the importance of occupations for the functioning of society. An occupation’s importance results from the extent to which it can be easily substituted for, and the degree to which other occupations are subordinate to, this position. Whether an occupation can be substituted is very much a function of the complexity of the tasks and skill requirements. According to functionalist logic, the more important a position is, the higher is its remuneration in order to motivate the acquisition of these skills. Thus, the difference in societal importance and training requirements result in differentially valued positions. It follows that there is a universal prestige hierarchy that exists in all societies which have a complex division of labor and occupational specialization (Treiman, 1977).

While this individualistic understanding of social inequality has been important, Gould recently suggested that positioning in status hierarchies might also result from collective attributions which can explain why economic rewards in low-status positions are frequently smaller and rewards from high-status positions are larger than they would be if status hierarchies would just reflect individual qualities and merits (Gould, 2002). While this new approach towards status hierarchies circumvents the individualistic reductionism, it still sticks to the gradational understanding of social inequality.

Gradational research in mobility and inequality

At the core of gradational research into social mobility lies the inquiry into factors that influence status attainment. A landmark study in this regard was *The American Occupational Structure* undertaken by Blau and Duncan (1967).[11] They focus on the status attainment process of American men based on the 20,000-observations-strong "Occupational Changes in a Generation" supplementary survey to the March 1962 Current Population Survey (CPS). The analyses cover various mechanisms which figure prominently in status attainment processes, including not only socio-economic factors like parental status, education and race, but also the effect of demographic factors like geographic mobility, fertility and marriage patterns on occupational attainment. The most important finding is that both occupational status and educational attainment of fathers have a strong and independent influence on occupational achievements of sons (Blau & Duncan, 1967, ch. 5).[12] While Blau and Duncan are very much aware of class constraints limiting mobility between farm, manual and non-manual occupations, they suggest in line with functionalist theory that contemporary boundaries to social mobility are transitory in nature and will eventually disappear through increasing universalism, which advantages achievement over ascription (Blau & Duncan, 1967, p. 428ff.).

Treiman further generalized this argument and hypothesized that industrialization will foster social mobility *universally* through strengthening the link between educational achievement and occupational outcomes, while weakening the association of parental and offspring status (Treiman, 1970). The argument is structured in two steps. First, industrialization, i.e. the mechanization of production, results in higher geographic mobility, the prevalence of mass communications and increasing levels of urbanization and education. These changes again increase social mobility in industrializing countries. There are some findings which support the claim that industrialization increases social fluidity, i.e. (relative) mobility chances (Treiman & Yip, 1989). Employing multilevel regression analysis with data from 20 countries, Yaish and Andersen find that the national degree of economic development, net migration and post-communist statehood correlates with higher intergenerational status mobility (Yaish & Andersen, 2012). Similarly, a higher level of democracy is associated with higher status mobility at least in former socialist countries (Gugushvili, 2014: Ch. 4).

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[11] Blau and Duncan in fact also study intergenerational class mobility patterns and class mobility trends across synthetic cohorts. However, the study focuses on status attainment processes which result in the occupational structure and employs status prestige measures for the examination of causes and barriers for processes of occupational achievement (Blau & Duncan, 1967, p. 19ff.).

[12] The influence of fathers' occupation is in part mediated by sons' educational achievement. However, fathers' occupational status also affects sons' status beyond education or first jobs and exerts a significant, though over the career decreasing, direct effect on the positioning of sons.

Equating gradational status attainment research and the expectations derived from functionalism and industrialization hypotheses, however, falls short of more recent gradational analyses in social mobility that forfeit status as measurement for the occupational rank. Based on canonical scaling, Rytina proposes to rank occupations so that the correlation between parental and offspring occupations is largest (Rytina, 1992, 2000). The resulting symmetric scale of intergenerational continuity (SSIC) can be interpreted as ranking occupations according to the degree of intergenerational persistence. Based on several analyses of the SSIC, Rytina finds that education plays a less important role for social reproduction than expected (Rytina, 1992). Comparing data from the OCG-II survey (1973) and the GSS (1972-1990), he further demonstrates that education actually becomes less important for social reproduction in the U.S. over time and that other, i.e. ascriptive, characteristics become more important (Rytina, 2000). Rytina's results have been challenged on methodological as well as theoretical grounds (Grusky & Rompaey, 1992; Hauser & Logan, 1992). Nevertheless, the SSIC is an example of a gradational approach towards mobility analysis which casts doubt on the interrelation of educational expansion and increasing mobility. Other gradational scales measuring social stratification based on social interaction include the CAMSIS scales (Cambridge Social Interaction and Stratification scales) which have also been used for the study of social mobility (Stewart et al., 1980; Prandy, 1998, 1999). Several findings presented by Chan and Goldthorpe for the U.K. indicate, however, that status (or social interaction for that matter) is more related to lifestyle phenomena, whereas class is more closely related to material inequalities and life chances (Chan & Goldthorpe, 2004, 2007). Because I am primarily interested in the latter, I abstain from discussing the various other status and prestige scales available.

Criticizing gradational accounts

Most importantly, the reductionism characterizing gradational measures may in fact reveal less than they hide with regards to social inequality (Goldthorpe, 1990). Although one may not know what status exactly is (Hodge, 1981, p. 407), it is relative clear that status measures vertical positioning. At the same time, however, horizontal differences between positions may also be important for life chances and class attainment. While routine manual workers, e.g., a shaping and joining machine operator, and routine non-manual workers, e.g., a maid or houseman, may have the same status (Hauser-Warren SEI=14.0 and 13.9, Hauser & Warren 1997), their place in the inequality space may be completely different. While the former position is more likely to be endowed with advantages originating in collective bargaining, but also more likely to suffer disadvantages like job loss due to ongoing rationalization and mechanization of production, individuals in the latter occupations may be more likely to live on less stable wages with lower fringe benefits and are generally subject to the good will of the employer or employing household.

This is simply to say that occupations may be similar in terms of status or prestige, but may differ because they are positioned within an institutional structure that is not reducible to *one* hierarchy. Especially with regards to intergenerational mobility, gradational approaches may seriously misrepresent the mobility process if they fail to reflect the non-hierarchical categorical differences between social groups (Müller & Karle, 1993). Examples may help to illuminate this point. As Blau and Duncan have made clear, educational attainment is the single most important factor for class attainment. While this might be true for professionals and increasingly managers, however, entrepreneurs and farmers frequently rely on other means of achieving immobility than educational attainment (Ishida et al., 1995). Similarly, crafts but not service occupations may be inherited across generations because entrance to these occupations may be more easily achieved if networks and skills complement educational or vocational training (Jonsson et al., 2009).

Furthermore, a methodological problem arises if gradational status attainment is equated with mobility. Gradational measures have been successful because they allow researchers to apply regression techniques to the question of stratification. The powerful multivariate approach allows for the modeling of status attainment as a complex process considering several different direct and indirect paths that contribute to status attainment. One problem of the application of path models to status attainment research, however, results from the linearity assumption inherent in the functional form of status attainment models. The idea that the status attainment process is the same on each level of the predictor variables, e.g., the assumption that intergenerational mobility is not differentially governed by the different institutions from the educational system to the welfare state as a whole seems overtly simplistic and has been extensively criticized (Kerckhoff, 1995; Kuha & Goldthorpe, 2010).

Finally, regression to the mean is always a problem in gradational approaches (Blau & Duncan, 1967, pp. 194-199; Jerrim & Vignoles, 2013). If, for instance, parental and offspring statuses are correlated less strongly between any two consecutive generations, one has to consider some “regression to the mean” because of two reasons. First, the finite scale of origin and destination status limits the possibility for upward mobility in high positions and downward mobility in low positions. Thus, mobility towards the mean is more likely and affects the correlation. Second, measurements of positional attributes like status, education, wealth and income do not need to correspond to the underlying true value. Luck with an exam, higher annual bonus payments or an unexpected inheritance may all affect the measurement, but at the same time may not correspond to a change in the link between resources and mobility. Hence, individuals will be prone to upward or downward mobility in spite of the respective resources and return to the true position, which in aggregate results in low intergenerational correlations.

All three criticisms are important for the decision against a gradational approach. Moreover, processes which govern intergenerational transmission of gradational assets, like income or education, are arguably different from those which affect the social reproduction in terms of occupations. Given that I am primarily interested in social mobility in the context of occupational change, following a gradational measure would divert us away from our focus on occupational change and towards status attainment processes. Most importantly, however, a gradational representation of social positions does not allow for the analysis of whether systematic mobility differences exist between offspring born to industrial or post-industrial positions on the *same* vertical level. Second, the influence exerted by structural change, which motivates this inquiry, is likely to unduly bias the results if a gradational scheme is employed.

3.2 Micro-classes and occupational class inequalities

The most recent conceptual approach to class inequalities has been formulated in terms of occupational micro-classes (Grusky & Sørensen, 1998; Grusky & Weeden, 2001; Grusky et al., 2001; Weeden & Grusky, 2005b; Grusky & Weeden, 2006, 2008; Weeden & Grusky, 2012). This strand of research has its direct theoretical foundation in Durkheim's (1893 [1960]) treatise on the *Division of Labor in Society* (Grusky & Galescu, 2005). From this perspective, big classes are purely transitory phenomena resulting from the distortions of early industrialization. In more differentiated societies, big classes are replaced by occupation-based social groups formed through the ongoing legal institutionalization of occupational associations. These associations provide for mechanical as well as organic solidarity on a local level through the establishment of occupational ethics and subcultures, as well as a legal and normative framework that regulates cooperation and coordination, integrating each occupational group within the greater society.

Horizontal and vertical differentiation

Micro-classes are the logical consequence of situating inequality production within the labor market at the site of production (Grusky & Sørensen, 1998). These occupational groups are in the sense real social classes as they represent homogeneous groups in terms of identification as well as material position. What follows from this approach is a hefty attack on the big class schemes' nominalism which, in the eyes of the critics, conceals more than it reveals. To put it in Grusky and Sørensen's own words, "institutional sources of exploitation (e.g., associations, unions) operate at the disaggregate level and therefore create material interests that are corespondingly disagregate in structure", which is why, "the more fundamental matter is that *all* aggregate categories will necessarily conceal the highly disaggregate level at which rent is extracted" (emph. i. o. Grusky & Sørensen, 1998, p. 1211). Therefore, students of material inequality are to employ a class scheme that reflects the disaggregate nature of inequality production *and* identifies real, i.e. class-conscious, social groups.

Three mechanisms account for social class formation at the site of production (Weeden & Grusky, 2005b, pp. 150-154). First, *allocation* to occupations, i.e. self-selection of applicants and selection through employers, fosters class incumbents' homogeneity with regards to dispositional traits, demographic composition and lifestyles. Second, the *institutionalization of conditions* results in class homogeneity in terms of work rewards and the organization of work. Similar rewards, wages and fringe-benefits result in homogeneous material conditions that frame decision making and result in class-wide patterns of social action. Employers, but also occupational interest groups like unions or associations, strive at creating homogeneous conditions within which the work is structurally embedded. Moreover, the institutionalization of objective conditions allows for further cultural similarity between class incumbents. Third, *social conditioning* further homogenizes incumbents within occupational classes. Conditioning refers to four submechanisms which create class-specific patterns of attitudes, lifestyles and practices. Formal and informal training and frequent interaction with co-workers result in the internalization of similar codes of conduct and ethics.

Once on the job, objective working conditions foster the formation of class-specific interests and patterns of social action. While similar resource constraints generate class-specific interests, occupational practices are translated to everyday situations. To put it briefly, micro-classes result from the division of labor that affect the formation of objective and subjective social groups (Grusky & Sørensen, 1998, p. 1195). They are institutionalized through jurisdictional settlements that create boundaries between occupation-based associations resulting in collectivities sharing common interests and (sub-)cultures. Therefore, micro-classes represent structural positions independent of its members attributes (Sørensen, 1991).

The mechanisms which give birth to micro-classes feature prominently in the creation of horizontal and vertical class differences. Micro-classes reflect horizontal differences with regards to identification, awareness, dispositions and lifestyles and vertical differences with regards to collective action and the resulting social closure (Grusky & Sørensen, 1998; Grusky & Weeden, 2001; Grusky et al., 2001; Weeden & Grusky, 2005b). Unequal life chances and material inequality result from the rent-seeking actions of occupational associations which strive for task monopolies and constraints on labor market competition. Grusky and Sørensen differentiate three important types of collective action which result in material inequalities (Grusky & Sørensen, 1998, p. 1206). Downwardly directed collective action aims at limiting access to positions. Lateral collective action aims at the creation and maintenance of task niches for occupations. Upwardly directed collective action, finally, aims at securing rewards and benefits for class incumbents from employers or the state. This collective action aims for creating and maintaining micro-class advantages at the expense of other social groups. The more occupational associations are able to introduce and maintain monopolies, the higher the realized rent for its members, and consequently the higher the economic differences between this and other micro-classes. The recourse on social closure, however, results in an important feature with regards to class differentials in life chances. Not all occupations are organized to the extent that they engage in closure strategies. Therefore, the class structure resembles "a complex patchwork" of micro-classes and "large regions of purely nominal categories" (Grusky & Galescu, 2005, pp. 9-10). This peculiar insular vertical structuration of micro-classes world will be further discussed below.[13]

The nature of inequality: aggregated classes vs. micro-classes

Depending on country and survey, the micro-class scheme maps occupation codes into 82 to 126 micro-classes based on the forms of social closure and the predominant occupational institutionalization (Weeden & Grusky, 2005b, p. 156; Jonsson et al., 2009, p. 995f.). In fact, micro-classes resemble more or less the three digit codes of official occupational classifications (e.g., ISCO-88). Up until now, most empirical analyses employing micro-classes were directed towards one

[13] There is some resemblence between the micro-class approach and recent rent-based exploitation approaches, however, it seems fair to say that micro-class advocates rather refer to social closure than exploitation in the explanation of vertical class differences (Sørensen, 1996; Grusky & Sørensen, 1998; Sørensen, 1998, 2000; Weeden & Grusky, 2005b)

of two aims. First, a series of analyses is directed at the evaluation of the claim that micro-classes can explain inequality in life chances, attitudes and dispositions better than either gradational or big class schemes (Weeden & Grusky, 2005b; Brooks & Svallfors, 2010; Weeden & Grusky, 2012). These analyses are mostly based on U.S. data and compare the association of the different class schemes and the inequality structure. Second, micro-classes have been employed to explain inequality phenomena like social immobility (Jonsson et al., 2009) and income inequality (Weeden et al., 2007).

I will first review the results from the comparison of the association between inequality measures and either micro-classes, gradational schemes or big classes. Alongside stratification in traditional life chances, class diffrerences in several indicators for lifestyles, political and social sentiments, as well as the demographic composition, are analyzed. Based on data from the General Social Survey (GSS) and Current Population Survey (CPS), Weeden and Grusky show that a large degree of association between micro-classes and the inequality measures exist even after big class association is accounted for (Weeden & Grusky, 2005b, p. 165). Additionally, they find that the association of inequality and big classes is frequently gradational in nature (Grusky & Weeden, 2006; Weeden & Grusky, 2012, p. 1741f.). The trend analyses further indicate that the association between big classes and inequality measures declined in most dimensions over the last three decades (Weeden & Grusky, 2012, p. 1747f.). The results clearly discourage the use of aggregated class schemes for the analysis of social inequality, at least for the U.S.. Moreover, Weeden and Grusky's findings seem to indicate that any decreasing class effect based on trend analysis employing big class schemes could very well simply be an artefact because the class measure itself is becoming less valid over time (Weeden & Grusky, 2012, p. 1756).

These results represent in fact a hefty blow to big class schemes and cast doubt on the results of intergenerational mobility studies over the last decades. Are the decreasing influence of parental class on children's educational outcomes or the constant flux of intergenerational mobility chances nothing but a methodological artefact? A closer look at Weeden and Grusky's results indicates that this is not the case. Although failing in cultural and political dimensions of attitudes and sentiments, big classes are associated quite well with the different measurements of unequal life chances, i.e. educational attainment, income, social origin, etc. First, variation in these measures is clearly higher between classes than within classes (Weeden & Grusky, 2005b, p. 200; 2005a, p. 26). Second, there is substantially less micro-class association with measures of life chances as compared to big class association (Weeden & Grusky, 2012, p. 1742). Third, the trend analyses indicate that there is little decrease, if any at all, in the association between big class and measurements of life chances (Weeden & Grusky, 2012, p.

1747). To sum up, if a study aims at the description and explanation of class differentials with regards to life chances, little can be gained from the employment of a micro-class scheme. In fact, considering the role of parsimony as an important benchmark for the evaluation of alternative explanations, it may seem rather wise to ignore the overly complex scheme unless one is interested in lifestyles, sentiments and attitudes or deliberately wants to study occupations.

The analysis of intergenerational mobility

It is of special interest for the question at hand whether micro-classes can theoretically and empirically account for patterns of intergenerational social mobility. Jonsson et al. (2009) analyze micro-class mobility patterns in the U.S., Germany, Japan and Sweden. They present several mechanisms which foster micro-class immobility. First, intergenerational transmission of occupation-specific economic, educational, cultural and social capital strengthens intergenerational micro-class immobility. The exposure of children to the occupational cultures of their parents results in the transmission of occupation-specific aspirations, values and ethics as well as skills which make it more likely that children follow in their parents' footsteps. Second, parents' on-the-job social networks and contacts inform children about employment opportunities and may offer assistance in practical matters. Third, the inheritance of fixed economic resources may also increase intergenerational immobility. Selling a firm or a farm can entail heavy transaction costs in the form of agent fees or taxes, which in turn increases the probability that children not only inherit a business but also the respective occupation itself. The resulting mobility patterns arguably vary internationally due to cross-country variation in the degree of occupationalization and predominant educational systems (Grusky & Galescu, 2005; Jonsson et al., 2009, p. 993f.).

Although micro-class immobility accounts for a mere 10% to 23% of individuals in each country, the relative mobility chances net of marginal effects for micro-class immobility are of a much larger magnitude than the respective aggregated class coefficients, especially for male respondents (Jonsson et al., 2009, pp. 1000-1008). Further analysis confirms that big class immobility in fact frequently reflects the inheritance of occupations from fathers to children. Analyzing the models' residuals, the authors find that mobility chances are higher between origins and destinations with occupations which share an occupational affinity, e.g., mobility chances are high between occupational origins and destinations with a seafaring or a literary affinity, like ship officers and fishermen or authors and librarians (Jonsson et al., 2009, p. 1011f.). However, Jonsson et al.

do not engage in a systematic test of this pattern, e.g., by means of topological models.

Erikson, Goldthorpe and Hällsten (2012) have repeated the comparative analysis of micro-class and big class intergenerational mobility based on Swedish census data and cast doubt on the theoretical and empirical fit. First, they emphasize the lack of theoretical explanations for mobility. Although up to 90% of individuals experience micro-class mobility, Jonsson et al. offer little more than anecdotic accounts of occupational proximity to explain systematic origin destination patterns.[14] Second, the critics analyze women's mobility in Sweden by replacing fathers' micro-class with mothers' position. If low immobility were due to the continuing gender segregation alone and the occupational inheritance hypothesis were still to hold, this alternative design should in fact produce fit statistics similarly in favor of a micro-class parametrization of origins and destinations. Quite to the contrary, mother-to-daughter mobility table analyses do not yield particularly better fitting micro-class models, leading to the conclusion that class immobility cannot be explained by recourse on micro-class effects alone (Erikson et al., 2012, p. 216). Third, Erikson et al. criticize the very limited fit of micro-class mobility models. More than half of the association between fathers' and sons' occupations and more than four-fifths of the intergenerational association in mobility tables of daughters remain unaccounted for by micro-classes (Erikson et al., 2012, p. 215). Decomposing the total intergenerational occupational association under the assumption of independence into a share accounting for the interrelation between fathers' and childrens' occupation, and another share accounting for the association between fathers' class and childrens' occupation, they can show that the class occupation models account for 65% and 70% of the association for either men and women (Erikson et al., 2012, p. 218). Thus, only the remaining 35% and 30% can be credited to the intergenerational association of occupations, net of big class influence. Finally, a model accounting for aggregated class-specific mobility and immobility effects (the core social mobility model (see Erikson & Goldthorpe, 1992)), questions the usefulness of micro-class models for the analysis of intergenational mobility altogether. In fact, this theoretically derived model significantly improves the understanding of the mobility table if compared to the micro-class-only model and aids in the understanding of the mobility barriers and channels between aggregated classes (Erikson et al., 2012, pp. 215, 221). Thus, the lack of theoretical power to explain social mobility patterns correlates with an empirical shortcoming, which as of this writing has not been remedied.

[14] From personal communications with one of the authors of the micro-class mobility paper, it seems likely that more elaborated analyses of micro-class mobility can be expected in the near future.

To sum up, the most recent approach towards social structuration is the micro-class account developed by Grusky and others. This account is surely the most ambitious recent approach because it operationalizes class in terms of real social groups which engage in collective action. As such, micro-classes theoretically account for social class formation, collective action and social inequality. The empirical analyses have shown so far that micro-classes account for some of the association between class on the one hand, and political and social sentiments, attitudes, lifestyles and dispositions on the other hand. Nevertheless, micro-classes fail to add empirically more to our understanding of how life chances are unequally distributed, although a strong theoretical argument is made founded in occupation-based social closure mechanisms. In my opinion, this contradiction between theoretical argument and empirical evidence can be traced back to a critical shortcoming of the underlying concept of class. The strength of the micro-class approach vis-á-vis other class schemes is surely to point at cultural dimensions which foster class formation and homogeneity and may account for class immobility, a route which is *a priori* discouraged by rational choice advocates (Goldthorpe, 2007c, p. 185). However, this cultural foundation of class is incomplete in so far as it lacks another crucial aspect of class theory, i.e. the relational character of classes. [15]

In my view, micro-classes are conceptionally lacking a relational attribute which is crucial if it comes to class differentials in life chances. Although micro-classes enable us to "distinguish rent-generating professions (e.g., lawyers) from those that are in the initial stages of a closure project (e.g., nurses)" (Grusky & Sørensen, 1998, p. 1211), they do not provide an explanation for economic (dis-)advantages for all or even most of the classes. Because occupational institutionalization is fragmentary at best, the micro-class scheme maps the occupational landscape rather incompletely (Grusky & Galescu, 2005). Social closure is understood in a rather quantitative way, i.e. some micro-classes obtain rents through more effective closure, others less and finally quite a few occupations do not engage in institutionalized closure activities at all (Grusky & Galescu, 2005, pp. 9-10). Because rent-generating monopolies are frequently only substainable if protected by the state, micro-classes may in fact tell us a good deal about the ability of occupational associations to lobby for their members' work to be perceived as an estimable, hence necessarily costly, public good (Sørensen,

[15] As Wright noticed, the primary difference between gradational and relational class concepts is that the former differentiates class with regards to more or less of some inequality measure, while the latter argues that classes "occupy a specific qualitative position within a social relationship" (Wright, 1979, p. 7). In that sense, one could argue that micro-classes represent with regards to material differences a gradational account because it is the degree of closure, not the type, which differentiates the classes vertically.

1996, 2000). However, micro-classes do not coherently relate material inequality to occupational position for all classes.

Thus, micro-class differentials in material conditions may be better understood as the outcome of a permanent, though latent, class struggle over rents within the political arena than based on occupational differences at the site of production (Begun et al., 1981; Golden, 1998; Lowery & Gray, 2004). If this road is chosen, however, it seems less plausible to assume that the occupational mechanisms which account for more or less homogenous identities, attitudes and sentiments in micro-classes *are the same* as those that allow for effective political mobilization, at least in democracies with only a few parties. On the contrary, it is more likely that the translation of occupation-specific aims into concrete policies leads to compromises that integrate diverse and even contradictory aims of several occupational associations as long as there is some common denominator, most likely to be found across occupations but within industries (e.g., craft, industrial workers, professionals). As it stands now, the micro-class approach rather differentiates occupations horizontally based on the diverse occupational local subcultures with their identity and habitus formation effects, which may or may not engage in social closure resulting in vertical material inequality. Without a relational differentiation, however, micro-classes may be a useful descriptive tool but do not lend themselves to explaining structural inequalities in the way big classes do.

For the purpose at hand, neither micro-classes nor gradational schemes are promising conceptualizations of the inequality space. Therefore, the focus in the following lies on aggregated class schemes. I start with the EGP class scheme dominant in mobility studies before reviewing alternatives that may be more appropriate with regards to the question at hand.

3.3 Employment relations and social class: the EGP scheme

Comparative research on intergenerational mobility typically employs the EGP class scheme introduced and elaborated by Goldthorpe, Erikson and various associates (Goldthorpe & Llewellyn, 1977b, 1977a; Goldthorpe et al., 1980; Erikson & Goldthorpe, 1992; Goldthorpe, 2007c).[16] The class scheme has been denoted as neo-Weberian (Breen, 2005), however, this classification simply states that the class theoretical agenda which accompanies the EGP scheme restricts itself to the explanation of class differences in life chances (Chan & Goldthorpe, 2004, 2007).

[16] The EGP class scheme is also known under alternative names, i.e. the CASMIN classes, or named after the primary contributor, the Goldthorpe classes (Breen, 2005). In order to avoid repetition, I will use all names interchangeably.

Over the previous three decades, the EGP scheme lived an unusually long life for a social sciences measure, however, its operationalization did not remain unchanged. In the following, I will describe the EGP classes, review their theoretical foundations and conclude with possible extensions to the original scheme.

Figure 8: EGP classes and employment relations, status and sector

Employee Classes								*Self-employed*		
Service Relation		Mixed or Modified		Labor Contract					Small Employers	No E.*
I	II	IIIa	IIIb	V	VI	VIIa	VIIb	IVc	IVa	IVb
Non-manual				*Manual*			*Agricultural*			

Notes: * self-employed without employees. Large employers are assigned to the service class I and self-employed professionals are assigned according to their occupations either to service classes I or II. If analyses are separately performed for men and women, class IIIb is usually merged with class VIIa (Erikson & Goldthorpe, 1992, p. 44).

In initial applications, the original EGP classes were derived by collapsing the Hope-Goldthorpe Scale of Occupational Desirability[17] into seven distinct classes (Goldthorpe & Hope, 1974; Goldthorpe & Llewellyn, 1977a, 1977b). Goldthorpe and Llewellyn grouped occupations representing similar labor market and work situations, i.e., grouped together were those occupations whose incumbents resemble each other with regards to "sources and levels of income, their degree of economic security and chances of economic advancement" as well as with regards to "their location within the systems of authority and control" (Goldthorpe & Llewellyn, 1980, p. 39). Although there is a rough similarity between higher scores on the Hope-Goldthorpe scale and higher class positions, the former cannot be reduced simply to the latter by means of collapsing neighboring status groups. Class VI, for example, comprises skilled manual wage workers in all branches of industry, e.g., millwrights and tool-makers (H-G value 18), printers and machine setters, carpenters and joiners, coalminers and crane operators (22, 23 and 27), and butchers and bakers (30) (Goldthorpe & Hope, 1974; Goldthorpe et al., 1980).

[17] The Hope-Goldthorpe scale is based on survey respondents' grading of the social standing of occupations and, according to its inventors, measures the general desirability of occupations in terms of labor market and work situation (Goldthorpe & Hope, 1974, p. 132f.). According to Goldthorpe, it is essentially an occupational prestige scale (Goldthorpe & Llewellyn, 1977a, p. 260).

In later implementations, Goldthorpe and various co-authors further refined the theoretical rational behind the EGP classes. From that point onwards, the scheme aimed at differentiating occupational positions in terms of employment status, number of employees, and most importantly, occupational employment relations (Erikson et al., 1979; Erikson & Goldthorpe, 1992). The resulting 11 classes (see Figure 8) can be collapsed into to a seven-, five- or three-class scheme. First, social positions are differentiated according to control over means of production into a class of small employers (EGP nomenclature: IVa), a class of self-employed without employees (IVb) and employee classes.

The employee class is further differentiated with regards to employment relations (Goldthorpe, 2007c, pp. 101-124). Employment represents not simply an exchange of labor for wage, but constitutes a social relationship regarding the command of effort. Although the employment contract spells out the formal rules of exchange (e.g., remuneration, working hours, etc.), details on how the work should be performed are rarely if ever specified or in fact determinable (Goldthorpe, 2007c, p. 107). In fact, employment contracts generally cannot comprise all potential work assignments in detail. Employing organizations, therefore, depend to some extent on the decisions of employees in order to reach their organizational aims (Simon, 1991). Thus, the relationship remains hazardous because employees have some discretion regarding their effort. Employment relations represent the positive-sum solution for this ambiguous relationship (Goldthorpe, 2000).[18] The degree to which they entail relative advantages or disadvantages depends on the characteristics of the contracted tasks, i.e. the occupations in question. Differentiating between two types if ideal typical employment relations, Goldthorpe argues that two distinct dimensions, namely difficulty of monitoring and specificity of human assets, explain why some types of work entail a service relationship, whereas other work is confined to a labor contract (Goldthorpe, 2007c, p. 109).

Occupations within or attached to modern bureaucracies that presuppose the application of specialized knowledge and professional skills, or the delegation of managerial authority, are governed by the service relationship (Goldthorpe, 2007c, p. 113). The hazardous nature of employment relations is especially endemic here. Because specialized tasks cannot be guaranteed solely through direct supervision, "the key connection that the contract aims to establish is that between employees' commitment to, and effective pursuit of, organizational goals and their career success and lifetime material well-being" (Goldthorpe, 2007c, p. 115). In fact, efficient monitoring would require the employment of supervisors with similar knowledge, credentials and skills, which ultimately renders supervision as costly

[18] Employment relations represent the "form of regulation of […] employment" formally comprising the employment contract itself and informally comprising all arrangements concerning how and which tasks are performed (Goldthorpe, 2007c, pp. 107-108).

as contracting the work itself (Goldthorpe, 2007c, p. 113). In these situations, employment relations aim at creating a long-term relationship between employer and employee in which the former compensates the latter for the effort, not just by means of the actual pay check but also by prospective elements like career opportunities, foreseeable future pay rises, fringe benefits and pension plans (Erikson & Goldthorpe, 1992, p. 42). Such a privileged relationship creates a moral commitment for employees who exercise a certain degree of autonomy and discretion due to their specialized knowledge and skills. The moral commitment thus becomes a means for control, or more precisely, "a functional alternative to direct control in regard to those employees whom the organization must […] *trust* to make decisions […] that are consistent with organizational values and goals" (ital. orig., Erikson & Goldthorpe, 1992, p. 42). While the service relationship is realized in its most typical form in the high service class (I) among managerial and professional occupations, the advantageous benefits of the service relationship are attenuated among the lower salariat and semi-professional occupations in the low service class (II).[19]

By contrast, work that does not require skill specificity and is easy to monitor, e.g., assembling precast elements or picking asparagus, is typically regulated by a contract entailing piece or time rates and limited future prospects. This labor contract "entail[s] a relatively short-term and specific exchange of money for effort" (Erikson & Goldthorpe, 1992, p. 41). Effort is guaranteed through strict control and the relationship can be terminated on a comparatively short notice because unskilled labor supply is in abundance. The time frame of such an exchange is typically short, work processes are supervised, payment is traditionally by the hour or the piece and no long-term relationship is intended. Labor contracts are typical for the employment of (unskilled) manual work. Moreover, employment relations of skilled (VI) and unskilled (VIIab) manual and agricultural workers and lower grade routine non-manual employees (IIIb) are more or less regulated by labor contracts (Goldthorpe, 2007c, p. 118).

[19] The operationalization of the service classes is somewhat at odds with its differentiation of self-employed, employers and employees. First, large employers are assigned to EGP class I because of their entrepreneurial and managerial activities, which seemingly render them more alike to salaried managers than small employers because the former's authority is based in the bureaucratic organization rather than their ownership which they have in common with the latter. Secondly, professionals and semi-professionals are assigned to either class I or II irrespective of whether they are employed, self-employed or employers. Self-employment of (semi-)professionals most importantly in the health professions, it is argued, is basically another form of public employment (Erikson & Goldthorpe, 1992, p. 41 and FN 13). In both cases, one could argue that it likely makes a difference whether pediatric skills or indeed a pediatric practice is inherited, however, more important is that the small employers and self-employed (IVab) are consequently a petty bourgeoisie of independent artisans, craftspeople and shop holders.

Two other classes represent a blend of labor contract and service relationship: the low-grade technicians (V) and the high-grade routine non-manual employees (IIIa). Whereas occupations within the former are characterized by a comparatively high degree of asset specificity, the latter resemble service class occupations with regards to monitoring difficulty. Therefore, employment relations with lower grade technicians frequently entail some sort of long-term commitment by the employer, whereas higher grade routine non-manual clerks and officers enjoy fixed salaries and some control over their working schedules (Goldthorpe, 2007c, p. 116 ff.).

While employment relations emphasize the vertical dimension of EGP classes, there exists also an apparent sectoral differentiation. Occupations within primary production are separated from other manual positions resulting in a class of unskilled agricultural workers (VIIb). Moreover, farmers and other agricultural self-employed are grouped in an independent class (IVc). Following the reconstruction of the rationale for the EGP class scheme above, however, it seems fair to say that EGP classes are differentiated most importantly by vertical characteristics. In fact, Goldthorpe's latest and most elaborated theoretical account does not mention earlier arguments for a horizontal differentiation, e.g., according to the sector in which work is employed (Goldthorpe, 2007c).

Strengths of the EGP scheme

The EGP scheme is surely among the most widely employed tools for the analysis of social inequality in general and social mobility in particular. Various applications have proven that the EGP scheme reflects significant differences between social groups, e.g., with regards to inter- and even multi-generational social mobility (Goldthorpe et al., 1980; Erola & Moisio, 2007; Goldthorpe & Jackson, 2007; Beller, 2009; Chan & Boliver, 2013a, 2013b) as well as career mobility (Goldthorpe & Llewellyn, 1977b; Groh-Samberg & Hertel, 2011), educational inequality (Breen & Luijkx, 2007; Pfeffer, 2008; Breen, 2010), earnings inequality (Morgan & McKerrow, 2004; Morgan & Tang, 2007), poverty (Layte & Whelan, 2002; Groh-Samberg, 2009; Vandecasteele, 2009) and voting behavior (Hout et al., 1993; Evans, 1999; Andersen & Heath, 2002) – to name but a few examples for fields in which the EGP scheme was successfully employed.

There are at least two reasons why the EGP scheme was so successful. First, the EGP scheme lends itself easily to cross-national analyses. Due to its theoretical foundation in the conflict between employers and employees, it can be assumed that the EGP scheme reflects class differences in a variety of significant inequalities *similarly* across industrialized capitalist market economies. Thus, the scheme is especially suitable for, and has been used in, a variety of cross-country studies of social and educational mobility (Erikson et al., 1979; Erikson & Goldthorpe, 1992; Breen, 2004a; Breen et al., 2009, 2010). Due to its long existence, cross-walks between various countries' occupational taxonomies and the EGP scheme are available, which makes the latter a handy tool, whether it is for cross-country or national inequality studies.

Second, its theoretical foundation allows us to understand the results of rather descriptive analyses as explanations for the (re)production of inequality. The EGP scheme rests on a differentiation of occupations into class positions that emphasizes not merely class differences in contemporary position, but also future prospects. These theoretical assumptions allow for the derivation of causal explanations, at least within the rational action theory (Breen & Goldthorpe, 1997; Goldthorpe, 2007c: ch. 7). The result of descriptive analyses, e.g., Erikson and Goldthorpe's famous finding that mobility chances (social fluidity) do not notably differ between, nor change substantially within, industrialized countries, can thus be explained by social action conditioned through persistent class differentials in mobility relevant resource differences (Erikson & Goldthorpe, 1992, p. 389ff.). The usefulness as well as the popularity of the EGP scheme arguably rests on its ability to be both a powerful classification device and a powerful explanatory device.[20]

Criticism of, and adjustments to, the EGP scheme

However, the EGP scheme's dominance did not remain unquestioned over the last three decades. One such criticism is that the EGP scheme represents primarily an industrial society with its vertical cleavages, but has little to offer with regard to horizontal differences. In its extreme form, such criticism argues that the EGP classes represent more or less arbitrarily collapsed hierarchically ordered positions (Prandy, 1998; Weeden & Grusky, 2012). Consequently, it is argued that EGP is not in accordance with the contemporary class structure and lacks appropriate differentiation (Werfhorst & Graaf, 2004). Along a similar line, Oesch questions the outdated differentiation between manual and non-manual positions. He notes that

[20] Additionally, the EGP scheme and its application to social inequality research was greatly facilitated by the institutional framework of ISA's RC28 (Hout & DiPrete, 2006). In fact, the finding of a similar pattern of social mobility within all analyzed countries - unimaginably without the widespread EGP scheme - is denoted by Hout and DiPrete as "major intellectual accomplishment of the RC" (Hout & DiPrete, 2006, p. 5). The shared interest in a similar question on the one hand, but also the institutional support through conferences and meetings, allowed the EGP to achieve its domination over social mobility studies.

"[i]n everyday economic activity, the growing similarity between lower grade employees and blue-collar workers is responsible for a series of practical problems" (Oesch, 2006b, p. 48). Due to the technologically induced upgrading of skilled manual work, as well as the continuous existence, if not expansion, of low-skilled interpersonal service workers, the once marked differences between manual workers and non-manual routine employees increasingly wither away (Gallie, 1991, 1996; Oesch, 2006b, p. 49). Even the most fervent advocates of class analysis criticized the EGP's service classes as too heterogeneous to account for class voting and proposed several adjustments (Hout et al., 1993; Müller, 1998, 2000). Critics argued that especially the service class has become politically more heterogeneous since the rise of the new middle classes and the emergence of liberal or green parties. This contrasts sharply with Goldthorpe's assertion that the service class is essentially conservative due to its members' privileged structural position that breeds compliance with employing organizations and the system on the whole (Goldthorpe, 1982). An ever increasing number of studies find that the service class is, at least with regards to their political views, bipolar, harboring economically strong right-wing social groups next to high-cultured left-wing liberals (Flemmen, 2013).

To account for the caveat of a heterogeneous service class, Güveli and associates proposed a further differentiation (Güveli & Graaf, 2007; Güveli et al., 2007a, 2007b). They suggest and test an adjusted EGP scheme (AEGP) that reflects the transformation of the employment structure in post-industrial societies. This adjusted scheme further differentiates the two service classes into four separate classes (Güveli et al., 2007a, p. 132). The further differentiation is needed because employment relations differ between social and cultural specialists on the one hand and managers and controllers, i.e. technocrats, on the other hand. The former are harder to control than the latter because of their specialized knowledge and skills. Specialists are identified by the work context (social services), which arguably requires social and cultural knowledge, e.g., medical expertise. There is no additional adjustment in the bottom regions of the class structure, i.e. only the service classes (I and II) are further divided into high- and low-grade technocrats (Ia and IIa) and high- and low-grade (Ib and IIb) social and cultural specialists (Güveli et al., 2007a, p. 133). Twelve experts from the Netherlands on labor markets and jobs independently assigned occupations to either of the four classes and a crosswalk from ISCO-88 occupation codes to classes was constructed based on the pundits' judgment (Güveli et al., 2007b, p. 606).[21]

[21] It remains unclear whether the experts actually coded the occupations according to employment relations or based on their intimate knowledge of the employment context. Relying on experts for the coding procedure arguably increases the validity of the scheme, however, maybe at the cost of theoretical coherence.

The adjustment proved to increase the EGP scheme's capacity to explain variation in voting behavior (Güveli et al., 2007a, p. 142f.) and helped to discover salient differences within the service class between the rather conservative technocrats and the politically left-leaning social and cultural specialists in the Netherlands with regards to economic and socio-political preferences, but also economic resources and working conditions (Güveli et al., 2007b, p. 625f.).[22] Regarding intragenerational mobility, the social and cultural specialists, at least in the Netherlands, are among the classes that experience by far the lowest absolute and relative career mobility, which signifies the extraordinary degree of social closure that delimits in absolute as well as relative terms these classes from technocrats and administrators on the one hand and lower classes on the other hand (Güveli & Graaf, 2007).

The adjusted EGP scheme has only been applied to the analysis of intergenerational mobility in the Netherlands (Güveli et al., 2012). Their results obtained by employing various association models underline the importance of differentiating technocrats and socio-cultural specialists. Both classes, for example, differ with regard to intergenerational openness. Children from the manual working classes are relatively more likely to be upwardly mobile into high- and low-grade technocrat positions than into the classes of social and cultural specialists (Güveli et al., 2012, p. 233). Furthermore, Güveli et al. demonstrate that if one were to collapse service classes, it is statistically superior to collapse low- and high grade classes within technocrats and social and cultural specialists than to collapse vertically similar classes from both segments (Güveli et al., 2012, p. 235f.). Consequently, the analysis of social mobility should avoid collapsing the horizontally different classes in one broad service class category. While Güveli et al. found no indication for different trends in class inheritance between technocrats and social and cultural specialists (Güveli et al., 2012, p. 237), one can argue that a trend in differential fluidity is possible and maybe even likely to evolve. Time and again it has been demonstrated that education is the single most important means to class attainment in general and the pathway into the highest class positions in particular (Blau & Duncan, 1967; Ishida et al., 1995; Breen & Karlson, 2014). If the new classes of social and cultural specialists are growing in relative size, and, compared to technocrats, entrance to, as well as careers within, these classes are to a greater extent mediated by education, than fluidity could change in the standard EGP model because of a changing class composition (Erikson & Goldthorpe, 1992, p. 193; Breen, 2004a, p. 46; Shavit et al., 2007; Breen et al., 2009, p. 1487).

[22] Incumbents of all other classes reported significantly lower (logged) incomes than high-grade technocrats (Güveli et al., 2007b, p. 621). Vertical differences across the two sections, however, are not as clear-cut as could be wished for. High-grade social and cultural specialists, for example, do not differ significantly from the low-grade technocrats with regard to incomes (Güveli et al., 2007b, p. 622).

Unfortunately, however, the usually employed version of the EGP scheme does not further differentiate the two service classes, so that one can only wonder whether the changing composition of the service classes is in fact what is underlying the increasingly similar absolute mobility patterns across nations, as well as increasing social fluidity found within most analyzed European countries (Breen & Luijkx, 2004, p. 49ff.). Moreover, the adjustment of the EGP scheme stops halfway by differentiating only the higher class positions. In fact, one is inclined to judge lawyers (social cultural specialists) more similar to public prosecutors (technocrats) than barbers to oil well drillers (both class VI skilled manual workers)[23]. Structural change arguably also affected the lower class positions of the routine workforce. What I question here, however, is not so much the heterogeneity of the female proletariat clustered in the low-grade routine non-manual class (Oesch, 2006b, esp. Ch. 3), but rather the blend of industrial workers, artisans, technicians and routine service workers which make up the skilled and unskilled manual workers.

This shortcoming is in fact partly addressed through a new European class scheme based on EGP. Due to its success in academic research, an adjusted version of the EGP scheme was adopted in 2001 by the British Office of National Statistics under the name of National Statistics Socio-economic Classification (NS-SeC) and replaced the Registrar General's Social Class scheme used in official statistics(Rose & Pevalin, 2003; Rose et al., 2005). The NS-SeC also inspired the development of the new European Socio-economic Classification (ESeC) which resembles its national predecessor (Rose & Harrison, 2010). Both schemes rest on a differentiation according to the employment status, number of employees, supervisory status and, most importantly, the discrimination of employees based on employment relations. Although ESeC as well as NS-SeC are said to be superior to the EGP scheme, the former has been employed rarely in cross-national research to date and it is not available for American occupational taxonomies(Rose & Harrison, 2010). At this point, it suffices to say that the ESeC differentiates blue- and white-collar jobs in the skilled workforce – with some exception like e.g., fitness instructors and sheet metalworkers – but combines the semi- and unskilled workers, e.g., assemblers and messengers, in one class. For the purposes at hand, however, I need a class scheme which coherently differentiates horizontally between different class positions. Such a scheme has been presented by Erik Olin Wright and will be discussed in the next section.

[23] Occupational titles and respective classes are obtained from Morgan and Tang's operationalization of the EGP class scheme for the U.S. (2007, esp. Appendix B pp. S16ff.) and Güveli and Graaf (2007, p. 201).

3.4 Exploitation and social class: Wright's class scheme

Erik Olin Wright is among the most famous and prolific neo-Marxist sociologists. He developed two different Marxist class schemes (Wright, 1979, 1982, 1997). While his initial operationalization of social class was based on the concept of domination within capitalist class relations, his later conceptualization of class rested on the notion of exploitation (Wright, 1985). In the following, I will briefly elaborate the first class scheme before concentrating on the second scheme proposed by Wright.

Based on (antagonistic) positional differences in the control over economic capital, physical means of production and authority, Wright's first class scheme differentiates between the three 'pure' class locations of proletariat, bourgeoisie and the petty bourgeoisie on the one hand, and three contradictory class locations in class relations, i.e. managers and supervisors, small employers and semi-autonomous wage earners on the other hand (Wright, 1979, 1982). While each class is characterized by the respective control or lack of control of either of the assets, the contradictory class positions are characterized by a situation in which, although they exhibit some control over an asset, they are still within the basic antagonistic class relation. While semi-autonomous wage earners, e.g., a university professor or an employed medical doctor, have no control over other laborers (authority), they have minimal control over investment decisions and the physical means of production. Managers, on the other hand, have control over other employees and partial control over the means of productions (Wright, 1979, p. 40).

In his later work, Wright emphasized the concept of exploitation for his concept of social classes. One important impulse for this conceptual rework was provided by Roemer's formulation of a general theory of exploitation (Roemer, 1982; 1996 [1994]: esp., pt. I). Wright refined Roemer's argument and defined exploitation as the appropriation of someone else's fruits of labor (i.e. the surplus value). As such it is a highly relational phenomenon because the exploiter's well-being causally depends on the exploitation process (Wright, 1985). While capitalist societies are characterized by exploitation that results from the uneven control over the means of production, the exploitation relationship is mediated by the characteristics of the occupational position. Command of authority due to organizational assets, i.e., the position within a hierarchy, or command of expertise reduce the ability of exploiters to appropriate the fruits of the labor of workers and allows workers to claim a portion of the social surplus themselves (Wright, 1997, p. 20ff.).

Authority grants a specific rent because supervisors, managers and executives exercise domination on behalf of the employers, owners, stockholders, in short: capitalists. Domination is nothing else than the continuous effort on behalf of the employer to extract as much labor from an employee as is possible given the norms and rules that govern the work process. Because workers always have an intrinsic motivation to sabotage the production process by eluding the employer of at least some of their effort (Brown, 1977), employers need to monitor their work. Since this cannot be done by capitalists in person on a large scale, a class of special workers is needed to perform this domination work. Consequently, the foremen, managers and officers who are concerned with the smooth process of production, are paid a "loyalty rent" on top of what they would need to reproduce their labor power (Bowles & Gintis, 1988, 1990; Wright, 1997, p. 21).

Classes are further differentiated according to the level of skills and expertise at the command of the workers. Wright offers two mechanisms for why skill and expertise should mediate the exploitation process. First, skills are scarce, which is why employees who control skills can extract a "skill rent" due to the limited supply (Wright, 1997, p. 22). Second, skilled work is harder to control than unskilled work, which is why employers have to pay larger compensations to skilled individuals in order to guarantee that experts comply with the organizational goals. Much like managers, experts are paid for complying with the interests of the capitalists who cannot use violence to compel skilled employees to supply all of their labor effort. In one way, Wright's conception of social class is particularly optimistic. Both simple workers and also managers and experts have the power to bring an end to the exploitation characteristic of the capitalist production process. At the same time, revolution is particularly unlikely because compliance with the rules that uphold exploitation is compensated according to the importance of the position for the process of exploitation.

Table 2: Class locations and assets in Wright's class scheme

	Ownership of means of production						
Means of Production	*Owners*		*Non-owners*				*Organization as-*
	Hire workers & do not work	Bourgeoisie	Expert Managers	Semi-credentialed Managers	Uncredentialed Managers	+	
	Hire workers & work	Small Employers	Expert Supervisors	Semi-credentialed Supervisors	Uncredentialed Supervisors	*>0*	
			Expert Non-managers	Semi-credentialed Workers	Proletarians	-	
	Do not hire & workers work	Petty Bourgeoisie	+	*>0*	-		
			Skill assets				

Notes: Adapted from table 3.3 in Wright, 1985, p.88.

Table 21 displays the 12 different class locations in Wright's last class scheme (Wright, 1985, p. Ch. 3 & 4). Initially, two class segments are differentiated: owners of the means of production and non-owners. The owners are further differentiated into those which employ wage-workers but do not have to work themselves, i.e., the Bourgeoisie, those that employ workers but also have to work, i.e., small employers, and those owners that do not hire employees and need to work, i.e., the Petty Bourgeoisie. Wage-laborers, or employees, are differentiated according to their skill and organizational assets. Positions are differentiated into managers, supervisors and workers according to their organizational assets and into experts, semi-credentialed and uncredentialed according to their skill assets. All but the proletarians own some kind of resource that allows the other wage-worker classes to participate in the exploitation game.

The Wright classes and social mobility

Wright also employed his class scheme for the analysis of intergenerational mobility (Western & Wright, 1994; Wright, 1997: Ch. 6). From Wright's perspective, social mobility is especially interesting with regard to the permeability of class boundaries set by expertise, authority and ownership. While ownership and, to a lesser extent, authority allows parents to pass down economic resources, expertise and the related cultural capital allows parents to affect their children's cultural skills and job preferences. Consequently, the extent to which exploitation is linked to parental class positions affects the intergenerational permeability of class boundaries. Wright further argues that boundaries differ with regard to the three assets. While property and skills are individual assets that allow for the more or less smooth transmission across generations, authority is granted only for a time and is bound to the individuals that populate the respective positions. Thus, the authority boundary is arguably most easily permeated (Wright, 1997, p. 172f.).

Analyzing social mobility chances in four countries – the United States, Canada, Sweden and Norway –Western and Wright (1994) find that indeed the property boundaries are strongest, whereas the authority boundaries are weakest. These findings have been corroborated for England and Wales, although with a slightly different design (Peng, 2001). Regarding country difference, Western and Wright further find that property and expertise boundaries are significantly higher in the two North American countries, while they are not significantly different in Sweden or Norway. They interpret the country difference in such a way that in more capitalist economic systems, property is related to higher boundaries because there are less state interventions which could offset the economic advantages conferred to property holders through continued exploitation (Western & Wright, 1994, p. 624).

Finally, their results underline that mobility barriers are not limited to the three assets by studying the mobility chances related to the working class. Their findings indicate that mobility chances between worker and non-worker classes differ significantly with regard to the non-worker categories, net of the boundaries cast by differential command over authority, skill or property. Moreover, Western and Wright find that mobility chances between self-employed and workers are substantially higher than those between workers and professionals or workers and employers (Western & Wright, 1994, p. 620). The latter finding is of special interest because, as the authors themselves state, the Goldthorpe scheme does not allow for the analysis of mobility differences between professional and managerial positions relative to all other class locations.

Criticizing Wright's class scheme of authority, skills and property

Wright offers a compelling theoretical argument that relates the advantage of some classes to the disadvantage of other classes and combines this with social mobility research. His usage of the exploitation concept not only distinguishes his class scheme from other class concepts, but also allows for the interpretation of the unequal mobility chances in terms of a causal relation between the exploiters and the exploited. In fact, lower mobility chances of workers on the one hand and employers on the other hand are intimately related because the production process allows the latter to appropriate resources for smooth intergenerational transmission and, at the same time, keep the former due to the lack of mobility-relevant resources in lower positions.

While this unified theoretical position is certainly the greatest strength of the scheme, it also comes at a price. There can be hardly any doubt that class relations intensified over the last decades through the neoliberal transformation of the state and the economic sector (Harvey, 2005). Thus, there can be little speculation about the evolution of mobility chances. From an exploitation-based perspective, it might surely be assumed that mobility chances as well as mobility flows declined over time. This assumption is, however, in clear contradiction to the findings of most mobility analyses (Breen, 2004a; Pollak, 2010). Either mobility chances increased or they stagnated in the past decades. While none of the mobility studies cited employed the Wright scheme, one would expect more similar findings just on the basis of Wright's assertion that his scheme is very similar to the EGP scheme.

This misfit becomes even more problematic if one considers the likely contradiction between the theoretical concept and empirical findings. While skills and credentials are important for explaining wage differentials in terms of exploitation, educational attainment is also prominent for determining mobility chances. As Hout (1988) pointed out nearly three decades ago and Torche (2011), at least partially, corroborated only recently, there is little association between class origins and class attainment among those who succeeded in attaining a tertiary education. The slight increase of social mobility over the past birth cohort in the U.S. can largely be attributed to the offsetting effects of compositional change that is of the growth of college graduates in the population (Pfeffer & Hertel, 2015). This finding leaves us with the paradoxical situation that while the exploitation potential of credentialed workers, if anything, increased due to the increasing demand for skills (Goldin & Katz, 2008), the same effect resulted in the increase of social fluidity.

Similarly, Wright's Marxist class scheme fails to substantiate Braverman's (1974 [1998]) assumption of systemic mass proletarianization, i.e., the transformation of three-fourths of the total population into the dispossessed proletariat through technological change in capitalism. Instead Wright finds that the occupational structure upgrades significantly even if sectoral and class shifts are taken into account at the same time (Wright, 1997: Ch. 3). While Wright's analysis is certainly right and Braverman's is, at least in the short run, certainly wrong, in both regards Wright's class scheme supports hypotheses other than the ones which would be likely if the theoretical foundation of the class scheme and the greater Marxist theory of social change would actually be true.

The misfit between theoretical concept, inequality development and empirical findings prevent me from employing Wright's class scheme in the following analyses. However, the argument for separating skills and authority and understanding both as representing two different sorts of assets for, and barriers to, intergenerational mobility is an ingenious contribution to mobility research that has been rarely noticed by analysts that employ the EGP scheme. I will now turn to two schemes which use radically different logics for assigning occupations to vertically and horizontally differentiated classes.

3.5 Social class and work logics: the Oesch scheme

Educational expansion, growing women's labor force participation and the expansion of the service classes and routine non-manual occupations prompted the development of a new class scheme by Oesch in 2006 (Oesch, 2006b, 2006a, 2008; Oesch & Rennwald, 2010; Oesch & Rodríguez Menés, 2011). Following theoretical and empirical work on political behavior, Oesch suggests to differentiate occupations horizontally according to the dominant work logic (2006b, p. 61). The work logic points to the context and everyday experience individuals have at work. It summarizes the type of work, its setting and organization, prevalent authority relations and the typical skill sets used to complete occupational tasks (Oesch, 2006b, p. 64). An important reference point for Oesch is Kriesi's (1989) work on new social movements in the Netherlands.

For his analysis of new social movements, Kriesi differentiated classes initially by invoking Wright's notion of differential productive assets, i.e. control over the means of production, organizational assets[24] and expertise (Wright, 1985, esp. Ch. 3). Based on occupational titles, educational credentials and supervisory status, Kriesi differentiates between the working class, the bourgeoisie and the new and old middle classes. The new middle classes are characterized by control over organizational and skill assets, whereas the bourgeoisie and the old middle classes control the means of production, i.e. comprised largely of employers and the self-employed. Finally, the middle classes are further differentiated according to the occupational segment. Like Güveli and associates, Kriesi finds that participation in, and support for, left-leaning new social movements is especially frequent among professionals and socio-cultural specialists (Kriesi, 1989, p. 1110f.). Although, Oesch forfeits Kriesi's horizontal differentiation rationale based on asset control for horizontal differentiation, he still argues in favor of a horizontal differentiation based in work logic (Oesch, 2006b, p. 61).

[24] Organization becomes an asset because it grants (partial) control over the division of labor (i.e. authority) to managers and bureaucrats, allowing them to claim a greater share of the social surplus resulting in exploitation of non-managers (Wright, 1985, p. 80f.).

In the following I will reconstruct the rationale underlying the Oesch classes (Oesch, 2006b, Ch. 5). Oesch initially distinguishes class positions according to their employment status, i.e., delimiting employers, self-employed workers and employees. According to Oesch, self-employment creates an independent work logic that differs from (and indeed dominates) the three occupational work logics of wage earners. Employee classes are either dominated by a technical, an organizational or an interpersonal work logic (Oesch, 2006b, p. 62f.). Within the technical work logic, tasks are determined by merely technical parameters, the authority relations depend heavily on the vertical position within this work logic and orientations are rather towards the respective professional community or group of trades, while the required skills are of a scientific, craft or manual nature. Within the organizational work logic, work processes are determined by the position within the bureaucracy, authority relations reflect the hierarchical nature of the bureaucracies and the employee's orientation is primarily towards the organization. Finally, coordination and control skills are the primary assets within the organizational work logic. Within the interpersonal work logic, tasks are embedded into a service setting of face-to-face interaction mostly situated outside the bureaucratic line of command, fostering an orientation towards the client. Accordingly, social skills are of upmost importance for occupations characterized by an interpersonal work logic. The ideal typical occupations reflecting the three work logics, each differentiated vertically by skills and authority into high and low positions, are technicians (e.g., mechanical engineers) and skilled manual workers (e.g., carpenters), associated managers (e.g., business administrators) and clerks (e.g., bank tellers), socio-cultural (semi-)professionals (e.g., university professors) and service workers (e.g., cooks) (Oesch, 2006b, pp. 65, 68).

Table 3: Class differentiation according to Oesch's class scheme

Employment Status						Marketable skills
Self-employed		*Employees*				
Large employers (1)	Professionals (2)	Technical experts (5)		Higher-grade managers (10)	Socio-cultural professionals (14)	*Professional/ managerial*
Small proprietors, artisans with employees (3)		Technicians (6)		Associate managers (11)	Socio-cultural semi-professionals (15)	*Associate professional/ managerial*
Small proprietors, artisans, without employees (4)		Skilled crafts (7)		Skilled office (12)	Skilled service (16)	*Generally/ vocationally skilled*
		Routine operatives (8)	Routine agriculture (9)	Routine office (13)	Routine service (17)	*Low/unskilled*
Independent work logic		*Technical work logic*		*Organizational work logic*	*Interpersonal work logic*	Marketable skills
Work logic						

Notes: Adapted from Table 5.2 in Oesch, 2006b, p.68.

Within the three types of employee work logics, occupations are vertically differentiated according to the marketable skill set. Oesch differentiates between four levels of marketable skills: professional and managerial degrees, associate professional and managerial degrees, generally or vocationally educated, and finally low-skilled or unskilled (Oesch, 2006b, pp. 66-68). It is important to note here that Oesch does not rely on Goldthorpe's argument of employment relations, but instead applies the educational certificates of employees as a direct indicator for the "advantage attaching to employment relations" (Oesch, 2006b, p. 67). Thus, Oesch forfeits the structural account usually taken with regards to class position and rather adopts an individualist perspective. Class is no longer attributed to a position within the division of labor, but depends vertically on the individual attributes of the employee. The Oesch class scheme distinguishes in its most detailed version 17 different class locations, four of which are self-employed, whereas the other 13 class locations are employee classes (see Table 3). This class scheme can be further collapsed into an eight class version that allows for the distinction in each work logic between a higher and a lower class position (Oesch, 2006b, p. 125).

Criticizing the Oesch classes for the study of social mobility

Compared to the other conceptions of the inequality space, the Oesch classes combine various useful characteristics for the analysis of social mobility in times of occupational change. Oesch's differentiation between vertically similar but horizontally different positions allows for the study of whether differences in the daily work experiences of parents matter for the mobility chances of children. Occupation-specific assets like skills, knowledge or marketable contacts, but also the mediated experiences of children with the occupation-specific life worlds of the parents, arguably affect children's occupational aspirations and may attenuate or allow for similar occupational choices fostering class reproduction across generations (Jonsson et al., 2009). Moreover, Oesch classes allow for the delineation of the 'pure' industrial workforce from other routine workers which is, of course, vital for the following analyses because it allows for the study of what happens if the composition of the working classes changes.

However, relying on individuals' educational credentials instead of on an occupation's skill specificity for assigning the vertical class position renders the Oesch classes inappropriate for the study of class mobility. This choice is surely understandable if class is employed for the description of social change or as explanatory device to understand class action, like voting. However, it also follows from this conceptualization that occupational and educational attainment is fundamentally and irreversibly intertwined. For mobility research, such a conceptual decision is fatal. As is known for a long time, occupational class background and parental educational attainment independently influence the status attainment process of children (Blau & Duncan, 1967; Pfeffer, 2008). Therefore, I have to abstain from employing the Oesch classes for the coming analysis. One of the main inspirations for Oesch's scheme combines a useful, though somewhat less fine-grained, horizontal differentiation with the strictly structural vertical differentiation. This class scheme has been proposed and applied by Esping-Anderson and collaborators in the 1990s (Esping-Andersen, 1993, 1999).

3.6 Class and the division of labor: the Esping-Andersen scheme

The Esping-Andersen class scheme was constructed in the early 1990s for the analysis of societal change towards a post-industrial stratification system (Assimakopoulou et al., 1992; Esping-Andersen, 1993, 1999). It was used to analyze the socio-economic change in various Western countries including the United States and Germany. Although intragenerational class mobility has been gainfully analyzed using the Esping-Andersen classes (see the various country analyses in Esping-Andersen's (1993) edited volume), there are, to my knowledge, no studies that apply this scheme to intergenerational mobility. The class scheme has been proposed as a pure 'heuristical' device, i.e., it does not translate a class theory into an empirical concept, but rather assigns occupations to classes according to more or less strictly applied criteria. The lack of a theoretical foundation is indeed the scheme's most problematic shortcoming.

Omitting agricultural professions, Esping-Andersen differentiates occupations into four Fordist industrial and four post-industrial classes. However, the theoretical foundation and practical operationalization of the class scheme remains rather unclear. This assessment can be demonstrated most effectively by Esping-Andersen's own account describing the horizontal and vertical differentiation of class positions:

> "In one set, we group those [*occupations*, FH] that represent the traditional industrial division of labor; in the second, we group those that are representative of the 'post-industrial' division of labor. For each set we can then classify occupations according to their place within the hierarchy that is symptomatic of the kind of the division of labor that obtains; that is, we distinguish between a fordist industrial hierarchy and a post-industrial hierarchy. The concept of hierarchy used here should be understood as broadly reflecting the degree of authority, responsibility and level of human capital applied." (Esping-Andersen, 1993, p. 24)

From this quote one can derive several dimensions according to which occupations are assigned to the different classes. The type of division of labor instructs the horizontal assignment to either post-industrial or industrial hierarchies. Occupations which are embedded in a rather strict chain of command make up the Fordist classes, whereas occupations which are characterized by rather blurry authority relations are assigned to the post-industrial classes. Oesch emphasizes that differences due to the division of labor should be understood in terms of daily work life experiences that instructs Esping-Andersen's horizontal differentiation (Oesch, 2006b, p. 65). Another dimension of horizontal differentiation is the overall higher importance of education for entrance to, and class mobility in, the post-industrial classes. Following the horizontal differentiation, occupations are assigned to one of four vertical positions reflecting the degree of authority and the position within the chain of command. This assignment to vertically different positions rests on marketable skills, i.e. human capital specificity of the performed tasks, degree of authority and responsibility.

In later conceptualizations, Esping-Andersen stresses the importance of workplace autonomy which differs according to the respective type of division of labor (Esping-Andersen, 1999, p. 106). While Fordist occupations tend to be located at an exact position within a rather strict chain of command limiting the workplace autonomy, the authority structure of commanding and executing within the post-industrial hierarchy is more blurred and occupations tend to be characterized by higher degrees of autonomy. This differentiation is especially interesting as it is also used to differentiate lower routine occupations in production and interpersonal services. Whereas a typical Fordist worker "operates machines in subordination to a managerial hierarchy with a relatively clear productivity-reward nexus," service work usually entails "a fair degree of autonomy, and discretion and only a vague link between productivity and reward" (Esping-Andersen, 1993, p. 14). It is important to note that workplace autonomy denotes not the freedom to do as one pleases, but rather the extent to which tasks are under direct auspices of superiors. While packers and haulers at Amazon.com or an operator at Ford are directly controlled by foremen and monitored through the rhythm and tempo of the assembly line or the GPS control system, a waitress or a hairdresser may not see their workplace manager more than twice a day or even less. Especially interpersonal service workers are supervised a great deal and controlled directly by the customer who can use the gratuity as an enforcing measure to sanction customer-oriented behavior.[25]

[25] The basic idea that tips are used to control behavior by rewarding what is deemed respectable is also visible in the case of the new charity practice called tip bombing. Anonymous groups of peoples give enormous tips to street musicians or servers (Today, 2014). "Tip Bombers" themselves (ref. for examples to http://tipbombs.com/ or https://www.facebook.com/tipbombing) but also media coverage of these organized donations generally emphasize the deserving nature of the service provider who is chosen for a gift. The talented street musician or the resilient waitress are but a few examples of people in need who are given tips because they deserve it.

Table 4: The Esping-Andersen classes

Command structure	Fordist division of labor	Post-industrial division of labor	Skill structure
Command	(1) Managers & proprietors	(5) Professionals & scientists	*High*
Administration	(2) Clerical, administrative & sales workers	(6) Technicians & semi-professionals	*Medium*
Execution	(3) Skilled manual workers	(7) Skilled service workers	*Medium*
Execution	(4) Unskilled manual workers	(8) Unskilled service workers	*Low*
Outside	(9) Unemployed outsiders		*mixed*

Note: Based on Esping-Andersen (1993, pp. 24-25; 1999, pp. 106-107).

Grouping occupations by the type of division of labor and the skill structure, Esping-Anderson finally arrives at eight classes (see Table 4) which reflect the respective industrial and post-industrial command, authority and human capital structure. While managers and proprietors command within the Fordist hierarchy, executive officers and clerks, skilled and finally unskilled manual workers execute. Similarly, professionals command while semi-professionals, skilled and unskilled service workers mostly execute routine tasks. It is important to note that the horizontal division does *not* represent independent employment environments. A large industrial company is likely to be run by managers who can command engineers, whose inventions are finally produced and sold by both manual and service workers. On each step of the vertical hierarchy, however, autonomy will be larger in post-industrial if compared to Fordist occupations. While occupations within primary production are excluded, the non-working population is included as an outsider group within the scheme (Esping-Andersen, 1993, p. 25).

Criticizing the Esping-Andersen classes

The Esping-Andersen classes in fact represent a class scheme which fits our purpose quite well. It differentiates horizontally between Fordist industrial and post-industrial occupations and further differentiates occupations according to the vertical position. However, several shortcomings arise from its underdeveloped theoretical foundation. First, the dualistic division of labor is seemingly at odds with a general vertical rank-order of classes. While each segment is characterized by its own division of labor, the post-industrial classes are presumably characterized by the absence of such a hierarchical structure (flat hierarchies and high degrees of autonomy). Consequently, it remains unclear to what extent and why industrial and post-industrial classes should differ with regards to social mobility. The class scheme may be gainfully applied as a descriptive device for absolute mobility streams, however, its usefulness for the explanation of differences in social fluidity is attenuated because there is no argumentative link between the horizontal differentiation on the one hand and status attainment processes on the other hand. Second, the classes are difficult to operationalize based on taxonomies other than the original occupational taxonomies because they were created as a pure heuristic device lacking a substantive theoretical underpinning. Third, the exclusion of agricultural workers and farmers limit the usefulness for the current application. The former is especially problematic with regard to mobility research because farmers have a very particular pattern of intergenerational mobility (Xie & Killewald, 2013). Farmer's relative decline over the first half of the 20th century results in ignoring one-third to one-fourth of the employed population in the early cohorts and may severely affect fluidity trend estimates across cohorts. Finally, the documentation providing information on the classes' operationalization did not match publicly available occupational classifications and thus could hardly be used for more than mere guidance in the coding endeavor (Assimakopoulou et al., 1992). Based on all three aggregated class accounts given so far, I therefore develop a new class hierarchy which rests on all three aforementioned class schemes, i.e. the classes are distinguished both based on the dominant work logic as well as on the employment relations.

4 The derivation of the IPICS class scheme

While none of the reviewed class schemes is fully adapted to the task at hand, each class scheme provides unique elements that are necessary to derive a conceptualization of the inequality space for the analysis of social mobility in post-industrial societies. Each scheme employs a distinct logic for the assignment of occupational positions to classes. While Goldthorpe argues that it is the employment relations which differentiate occupations appropriately with regards to asset endowment and career prospects, Oesch and Esping-Andersen favor work logic and individual credentials or occupational skill sets to delimit class locations. Wright, in contrast, bases his class scheme on the process of exploitation. In the following, I take advantage of all four accounts by separating occupations first with regards to the dominant work logic horizontally into industrial and post-industrial class locations. Within these broad categories I further distinguish between vertically different positions according to employment relations represented by ease of supervision and skill specificity of the usual tasks performed. I relate both vertical hierarchies to different rent generating processes based on authority and skills. The resulting class scheme of **i**ndustrial and **p**ost-**i**ndustrial **c**lasse**s** (IPICS) is designed primarily for the analysis of social mobility and occupational change. In the following, the horizontal and vertical dimensions for grouping occupations into classes are described in more detail. After the classes are presented, incoherencies with regard to self-employment and class assignment and question pertaining to the relationship of IPICS, gender and ethnicity are briefly discussed. This chapter closes with a discussion of how IPICS class position may affect social mobility mechanisms.

4.1 Horizontal differentiation according to the work logic

IPICS' horizontal differentiation aims at realizing Esping-Andersen's duality of industrial and post-industrial class locations. Industrial and post-industrial classes differ by the way they are situated within the division of labor. Following the micro-class literature, the division of labor is understood as an ongoing organic process by which "realist" classes are formed (Grusky & Sørensen, 1998). Instead of differentiating them in terms of institutionalization and social closure, however, I

F.R. Hertel, Social Mobility in the 20 th Century,
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resort to the daily work experience or dominant work logics for delimiting classes horizontally. Following Oesch, work logics are distinct with regards to the setting of the work process, the authority relations, the primary orientation and the required skills (Oesch, 2006b, p. 64). However, I only differentiate two of the three (employee) work logics proposed by Oesch (I will come back to that later).

Furthermore, work logics correspond to different assets that alter the exploitation process and create relevant class boundaries (Wright, 1985; Western & Wright, 1994). According to Wright, class societies are characterized by three important boundaries determined by ownership of property, authority and expertise. While ownership of property allows capitalist employers to appropriate the profits, authority and expertise enable employees to obtain a rent based on their strategic position within the overall process of economic production (ref. section 3.4 for details). Although originally designed to describe the different class locations relative to economic exploitation, i.e. the assets' specific capacities to mediate the exploitation process through the creation of rents, this division can also be employed to understand the characteristic differences between industrial and post-industrial class segments within capitalist societies. While property ownership delimits the (petty) bourgeoisie from the employer classes, employment relations based on either authority or expertise are the assets which allow for primary rent production within the industrial-organizational and the post-industrial-interpersonal hierarchy. The hierarchies within each work logic develop around the different levels of either granted authority or required skill sets.

Arguably, both hierarchies are at least on the higher levels associated with different class interests which may correlate with opposing political attitudes. Kriesi suggests that managerial and administrative technocrats as well as technical, crafts and protective specialists on the one hand, and professional specialists on the other hand, populate antagonistic class positions because "the former are essentially concerned with the preservation of the integrity of the organization (or organizational unit) as a whole, while the latter are concerned with the preservation of the integrity of their specialized pursuit of a discipline or a profession" (Kriesi, 1989, p. 1081). The opposing interests of the conservators of the ruling order and the professionals who rather hold allegiance to their occupational codes may be overstated especially because it is the state which legally regulates the potential to obtain rents due to academic training. However, different socio-political preferences and action may give rise to conflicts between both groups even if they enjoy similar employment relations and living conditions (Kriesi, 1989, p. 1111).

Table 5: Horizontal differentiation in the IPICS scheme

	Industrial Classes work logic (administrative-organizational)	Post-industrial work logic (interpersonal)
Primary orientation	Organization	Customer or occupational community
Authority relation	Clear-cut command structure exemplified by bureaucracies or production lines	High degrees of discretion in higher positions, partial discretion among rank and file workers
Skill requirement	Control and coordination	Scientific expertise and social skills
Typical assets	Organizational and technical	Academic and social
Occupations	Manager, Administrators, Clerks, Lower Grade Technicians, Craftsmen, assemblers	Scientists, Medical Doctors, Nurses, Cook, Waitress, Hair Stylist, Security Guard

Note: Typology adapted from Oesch (2006b, p. 64). Own assignment.

Table 5 summarizes the four dimensions and highlights the horizontal variation across work logics. Occupations within an *industrial-organizational logic* typically exist in public or private bureaucracies and industrial production facilities. Coordination and control skills are as important as the ability to execute orders in a timely fashion. Work tasks and responsibilities are comparatively well framed and orientation is directed towards the success of the employing organization. In fact, managers, administrative and technical experts, and arguably also lower ranking officers within organizations, are concerned daily with the integrity of the organization (Kriesi, 1989, 1998).[26] Moreover, career paths and seniority systems

[26] While one may argue that the introduction of new public management (NPM) might have limited the extent to which organizations are self-centered, it is important to note that we speak not about the organization as such but about the individuals working within organizations. There is no reason why more efficient or customer-oriented processes should affect the focus of the employees who are still working within a primarily hierarchically structured bureaucratic organization, even if the large hierarchies make room for team work and managers are replaced by coordinators (Boltanski & Chiapello, 2005). In fact, comparative studies about the introduction of NPM in Europe show that exactly in those cases where a strong traditional bureaucracy existed, processes and institutions associated with NPM were more likely to be successfully implemented (Pollitt et al., 2007). Thus, NPM and hierarchical organization are no contradiction per se.

are typically well known and resemble the command structure. They represent the institutionalized reward system, not only for merit but also for adaptation to the employing organization's aims and goals. Consequently, organizational assets are most important within the organizational hierarchy. Whether it is the manager who controls the whole enterprise, or the foremen controlling the rank and file workforce, it is always the organizationally backed hierarchy that grants power over others. In that sense, technical expertise is subordinate to the organizational assets. The former may lead to high positions within the Fordist hierarchies but does not per se legitimate the execution of organizational power. Typical occupations within the organizational work logic are managers and administrators, directors, office clerks, lower grade technicians and assemblers.

Within the *organizational work logic*, authority is of utmost importance because of the vertical integration of everyday tasks and working conditions. To be clear, it is not the vertical differentiation – the ease of supervision or "amount" of authority – which the authority dimension points at, but rather the omnipresence of the relationship to authority that characterizes industrial occupations as positions which only exist with reference to hierarchically structured work processes. What is easily understandable for managers, administrators, clerks and rank and file officers within bureaucracies, is also true for the skilled manual workforce. Whether manufacturing positions embedded in flexible neo-Taylorist work processes within modern factories or the compartmentalized nature of craft workers contributing to modern construction business, positions are generally, though to varying degrees, hierarchically organized around rationalized, automated and computerized work processes. Similarly, unskilled workers serving the assembly lines or stock clerks processing goods in the real life storehouses of virtual marketplaces are based on hierarchically divided work processes and, in fact, a lack of authority. Interestingly, a key characteristic of tasks within the organizational work logic, at least within the realms of clerks and officers as well as manual workers, is their standardized nature. Because many tasks are auxiliary to other work processes, they have to be standardized to allow for common interfaces at which the output of one task can become the input of another. Such work processes of course are prone to resemble routines that lend themselves more easily to substitution by automation, computerization or mechanization (Autor et al., 2003).

The *interpersonal work logic* is characterized by a comparatively high degree of orientation towards customers or the professional community. While it is of course the employer that pays for the work, its meaning is derived from the interrelationship with customers and colleagues rather than from the role within the organization. Especially among the (semi-)professionals, colleagues represent an important local proxy for the occupational community through which expertise is objectively evaluated and recognized (Kriesi, 1989). Therefore, social skills enabling successful face-to-face interactions with customers as well as colleagues are important assets to achieve occupational success within interpersonal work environments. While command structures are likely to exist at least formally, occupations within the interpersonal work logic enjoy relatively large degrees of autonomy with regards to work processes (Esping-Andersen, 1993). Employees' discretion results in part from the relatively high degree of personal responsibility, as well as from the need to adapt work processes to the situational context in which tasks are performed. In higher positions, autonomy gives room for the demonstration of individual excellence independent of the perception of haunting deadlines or excessive amounts of meetings and presentations. In the lower positions such autonomy is essential for workers adaptation to customer's or employer's needs, like in the case of shop assistants which tirelessly – and quite in vain – labor to reproduce normality just as if the last customer did not rearrange the clothes or took the can from the very bottom of the stock pile (Bahl, 2014). Professors, medical doctors, teachers, nurses, police officers, hairstylists and sales personal are exemplary for the interpersonal work logic.

Expertise is the salient asset corresponding to the interpersonal work logic. It is this assumed independence that conveys that the expert work is done in the best interest of the targeted audience, whether customer or professional community. Although the work certainly serves the economic, political or ethical interests of the employing organization, tasks and work processes depend on autonomous decision making. In their proverbial ivory towers, academics study to achieve a better understanding of their respective subjects, creative professions develop new marketing strategies from scratch or impress with novel applications, all said to be products of an atmosphere of freedom and creativity. Similarly, health practitioners, doctors and nurses need to attend instantaneously to their patients' problems and react to various degrees autonomously to problematic situations. In short, work organization and processes in the post-industrial occupations rely on individual expertise and agency rather than acting strictly under orders. What is easily understandable for professionals and semi-professionals is less easy to argue for the under recognized expertise of the lower classes within the post-industrial segment. The work of police officers and firefighters, for example, although formally organized within hierarchical structures resembling rather the military than any civil branch of the executive, entails not only complex interactions with alleged criminals, witnesses and victims, but also the command of at least basic expertise in deductive reasoning and 'everyday' criminal logic. Service workers' expertise is frequently shared by their customers, for example in case of cleaners, hairstylists or servers, or at least can be learned with minimal investments in time and money, which is why little rents can be obtained in the bottom strata of the post-industrial class segment. On the contrary, due to the customers' basic understanding of the work tasks and a general notion of how services should be performed, service workers are in fact at the critical disposal of their customers and clients, stripped of the protective capacities of an anonymous hierarchical structure or anonymity-granting representative institutions like workers' councils or unions.

The proposed horizontal differentiation departs from the one proposed by Oesch (Oesch, 2006b). While Oesch differentiates three distinct employee work logics, I single out only two. Higher technical positions are assigned to the interpersonal logic, whereas lower technical positions are assigned to the organizational logic. There are several reasons for that decision. First, in my mind the technological work logic is rather subordinate to the organizational and interpersonal work logic. Many occupations in either work logic can be characterized by technical parameters and expertise. Following Oesch, higher grade technical occupations are defined by technical parameters, situated outside the line of command, oriented towards the professional community and requiring scientific expertise (2006b, p. 64f.). All of these characteristics are shared to a varying degree by high grade positions located within an interpersonal work setting like researchers, teachers, nurses and medical doctors. Similarly, the hierarchical command structure experienced among the lower ranks of technical occupations is similar to my understanding of the organizational work setting, in spite of the importance of technical parameters. Whether one has to write a standard letter after some clerical norm or flexibly adjust a machine within fully standardized parameters, the work itself frequently boils down to fulfill an impersonal role assigned within the greater hierarchical structure, like a cogwheel with little room for free-wheeling.

However, the separation or combination of these work logics can only be judged in light of the concrete matter at hand. With regards to social mobility, one could argue that mobility strategies among high-grade employees within the technical work logic are more similar to those of socio-cultural specialists within the interpersonal work logic than to the strategies followed by managers and administrators. In fact, Western and Wright (1994) demonstrate that the skill assets affect mobility chances differently than either property or authority assets. Undeniably, technical experts belong education-wise rather to socio-cultural experts than to the managerial and administrative elite. However, the offspring of lower grade technical employees are more likely to be steered towards vocational training similar in labor market value to the ones of non-manual workers within organizational work logics. If one is more interested in differentiating educational attainment horizontally, e.g., by studying differential access to fields of study, or other channels of social reproduction and mobility, or wants to study social mobility in greater detail, it might be more useful to adhere to Oesch's original three-fold class differentiation.

4.2 Vertical differentiation according to employment relations

Within each of the two work logics, I further distinguish vertically different class positions. In line with the class schemes by Wright and Goldthorpe, vertical differentiation is based on the performed task specificity (skill dimension) on the one hand, and the ease to monitor the employee (authority dimension) on the other hand. The assignment to vertical class locations is secondary to the horizontal differentiation, i.e., classes are not *a priori* vertically ordered across the industrial and post-industrial segment, but only within each hierarchy. However, it becomes clear in the coming chapters that classes are hierarchically ordered across segments, e.g., with regard to remuneration or educational requirements, and an empirical rank-order is potentially derivable based on the distribution of various positional goods (ref. to Ch. 5.3).

While I follow Goldthorpe in differentiating occupations vertically according to the typical employment relations indicated by ease of monitoring and human capital specificity (Erikson & Goldthorpe, 1992; Goldthorpe, 2007c), I also follow Wright in assuming that both dimensions actually belong to different types of assets that create independent hierarchies and follow a different logic even if neither of these logics must be *a priori* following from exploitation processes (Wright, 1985, 1997). Goldthorpe, who assumes that the problem is solely rooted in the specific nature of the good labor and the hazardous nature of the employment contract, collapses both dimensions and arrives at one more or less ordinal measure of employment relations ranging from labor contract to service relationship. From an exploratory perspective, Wright's approach is the more promising because it actually allows me to test whether mobility differs on all vertical positions between the two horizontal segments.

Thus, there are two hierarchical representations of employment relations, one primarily due to skill specificity and one primarily due to authority. While both hierarchies represent the problem of compliance and effective monitoring, they also represent different reasons for that problem. To varying degrees the hierarchies are stratified by both dimensions of the employment contract. However, in the industrial-organizational hierarchy, employment relations reflect the domination principle immanent within the employer-employee relation. Occupational classes differ here primarily with the extent to which they are subject to supervision or agent providing monitoring. Skill specificity is secondary in this hierarchy. In contrast, the post-industrial hierarchy is far more characterized by the educational distribution. Skill requirements, either academic or social, play a more important role for the vertical positioning here than the monitoring concerns. While each hierarchy has a primary axis of stratification, the secondary axis plays a non-negligible role for the position in the inequality space. While the specificity of the performed tasks, the employed knowledge and skill sets are a widely accepted and comparatively clear-cut criterion for differentiating class positions vertically, authority relations seem to be more ambiguous not least because of their omnipresence in the employer-employee relationship. While I can cite some findings that support the general correlation of vertical class position and employment relations, there is, to the best of my knowledge, no study available that differentiates employment relations between organizational and interpersonal fields of work.

Class based variations in employment relations in terms of labor control have been substantiated by Gallie and associates based on a nationally representative sample for Britain (Gallie et al., 1998). Following Edwards (1979), the authors differentiate between three types of control, i.e., simple or personal control, technical control and, finally, bureaucratic control. In their analyses, Gallie et al. differentiate between five classes: professional and managerial (EGP I+II), lower non-manual (IIIa), technician and supervisory (V), skilled manual (VI) and semi- and non-skilled employees (IIIb+VIIab) (Gallie et al., 1998, p. 318). They find that the first type of control, direct supervision, is used especially to monitor manual and low-grade non-manual routine employees (Gallie et al., 1998, p. 63). The low-skilled workers are not only more frequently directly supervised, but such personal control also tightened over the early 1990s, whereas it became even less prevalent among professionals and managerial occupations. Similarly, technical control, indicated by repetitive tasks, high working speed, machine-pacing or assembly-line work, was highest among skilled and unskilled manual workers as well as among high- and low-grade routine non-manual employees (Gallie et al., 1998, p. 66). Finally, bureaucratic control systems are at work in the higher classes. These performance management control systems are based on target setting and respective merit rewards that foster employees' commitment to organizational goals. The study finds that these bureaucratic control systems are especially frequent among professional, managerial and lower non-manual employees, controlling them most frequently with appraisal dependent training chances, career prospects and pay rises on merit (Gallie et al., 1998, p. 68). These results seem to warrant a vertical differentiation based on the complexity of performed tasks and the presumed authority relationship that can be derived directly from the detailed occupational descriptions. Classes are assigned based on the employment relations indicated by two occupational properties: the performed tasks' skill specificity and occupational autonomy and authority. The latter is evaluated by comparing occupational task descriptions with types of control (personally, technically or bureaucratically) and the level of employee discretion.

Finally, Wright's approach allows to think of the IPICS class scheme as relational in the sense that high and low positions across both segments are related in their unequal distribution of resources. If one accepts that employers profit from their employees' labor, and this profit is shared with other employees to the extent that some workers are able to exert a rent – whether due to their role in the domination process, as a result of the scarcity of their specific skill sets, or because of monitoring problems (Goldthorpe, 2000; Sørensen, 2000; Wright, 2000) – it becomes clear that higher class members profit at the expense of lower class members because they maintain the profit generating mechanism. Whether one thinks of exploitation or any kind of 'just' market mechanism, the basic idea here is that higher class members enable profit generation through their positions either for themselves or their employers, perhaps through direct supervision and control, perhaps through inventing a new financial product or through educating the future labor force into accepting their role as docile workers (Bowles & Gintis, 1976). Of course, this suggestion remains hypothetical unless a causal relationship can be demonstrated between the general division of profits within the social classes and the positional attributes assigned to them.

Table 6: Industrial and post-industrial class scheme (IPICS)

	Employees			*Self-employed*
High	Industrial classes (administrative and organizational)	Post-industrial classes (interpersonal Service)	*High*	
Authority ↑	Managers & administrators	Professionals	Skill specificity ↑	(Class assigned)*
	Clerks & officers	Semi-professionals		Petty bourgeoisie
	Skilled manual workers	Skilled service workers		
	Unskilled manual workers	Unskilled service workers		
Low	Farm workers		*Low*	Farmers

Note: Own typology based on the work of Esping-Andersen (1993, 1999), Oesch (2006b) and Goldthorpe (1992; 2007c). *The self-employed on the highest vertical level are assigned due to their occupations.

Grouping occupations with regard to the horizontal and vertical criteria results in the eight employee classes and two self-employed residual categories displayed in Table 6. Within each work logic, four vertically ordered classes are distinguished according to employment relations and the two primary stratification axes of authority (industrial segment) and skills (post-industrial segment). At the top of the industrial hierarchy, *Managers and Administrators* (1) are characterized by high degrees of discretion and enjoy control over other employees. Although they may not be firm owners at the top of the chain of command, their discretion is pivotal to their daily work experience and their supervision itself is rather costly. Therefore, compliance with the employing organizations' aims has to be secured mostly by bureaucratic means of control. Typical occupations within this class include all kinds of managers, chief executives, officials and school and health administrators. *Clerks and Officers* (2) execute their superiors' commands within more or less completely formalized work routines. Although easy to monitor in theory, clerks and officers are likely to evade control by the impersonal nature of rational bureaucracies and the difficulty in measuring productivity of single units that are embedded within larger bureaucratic hierarchies. Compared to the manual workforce, their commitment has to be internally motivated to a greater extent, i.e. via means of bureaucratic control (Gallie et al., 1998, p. 68). Typical occupations within this class comprise secretaries and administrative assistants, office clerks, bookkeepers and claims adjusters. Work processes of *Skilled Manual Workers* (3) are determined to a high degree by technical parameters which are more easily monitored. Nevertheless, some elements of bureaucratic control are at play here, especially with regards to lower grade technicians. Tasks typically require some degree of vocational training or associate degrees. Employment relations between skilled and unskilled workers differ mainly with regards to the skill specificity and easier supervision of the generally more routine nature of the latter's tasks. Moreover, skilled manual workers more frequently obtain supervisory positions and enjoy higher degrees of discretion as compared to unskilled manual workers. Typical occupations within this class are industrial engineering technicians, machinists, toolmakers, brick masons and supervisors of production workers. *Low and Unskilled Manual Workers* (4), finally, are most likely to work under conditions that resemble Goldthorpe's labor contract (see p. 69ff. above). Required skills are generally learned on-the-job or in short training sessions and tasks are easily monitored, either personally or through the technical organization of the work process itself. Consequently, unskilled manual workers are more prone to irregular payment by piece or hour, easy to monitor and the first to be dismissed in case of automation and rationalization. Unskilled manual workers frequently work in the plastic and rubber industry, metal working, as well as food, beverage and tobacco manufacturing (Hirsch-Kreinsen et al., 2012). Typical occupations comprise production workers, assemblers and freight handlers.

Socio-cultural, technical and health *Professionals* (5) take the highest positions characterized by an interpersonal work logic. Although even the highest salaried professionals are frequently at least formally controlled by managers or administrators, professionals typically enjoy the greatest freedom in the exercise of their professions. They are primarily oriented towards customers or the occupational community which often regulates, in cooperation with public agencies, the entrance to these positions. The only way to gain access to these positions is to achieve academic credentials or pass public exams. The high skill specificity renders supervision rather costly, which is why professionals enjoy relatively high earnings and comparatively luxurious fringe benefits in order to motivate compliance with the employing organization's aims. Typical occupations within this class comprise postsecondary teachers, accountants, lawyers and health professionals like dentists, surgeons or physicians. *Semi-Professionals* (6) comprise occupations which similarly evolve around occupational groups. However, skill specificity in these occupations is generally lower than in the classical professions and is frequently more technical in nature. Therefore, work is more easily monitored if compared to professionals. Moreover, institutionalization is less advanced in these positions than in the professional class. Typical occupations within this class include registered nurses, health technicians, counselors and social workers. *Skilled Service Workers* (7) are frequently employed in an interpersonal service setting, but also include mechanics engaging in repair work of consumer goods. They frequently perform non-routine duties, including the direct contact to the customer or overseeing the work of unskilled service workers. Skills are usually formalized and taught at specialized schools. Typical occupations within this class are police officers, bus drivers, chefs, skilled sales representatives or automobile mechanics. Finally, *Unskilled Service Workers* (8) make up the proletariat of the post-industrial class hierarchy. Their work seldom requires intensive formal training, hence investment in unskilled service workers is rather rare. While unskilled manual workers are closely monitored by their supervisors, servers and hairstylists additionally work at the mercy of their customers whose tip may be a non-negligible part of their daily earnings. Besides the exchange of money for services, interpersonal relations also comprise some sort of supervision. Like the unskilled manual workers, unskilled service workers are regulated by little more than the basic labor contract. The direct interpersonal work context and the subordinate position also results in non-task related requirements, such as (context dependent) appropriate outer appearance or language skills, which may in spite of the unqualified nature of the tasks result in comparatively high and arbitrary job requirements (Hieming et al., 2006). Typical occupations within this class are nursing aides, janitors, cashiers and sales workers, fast food cooks and servers.

Where reasonable, three additional class locations are distinguished in the following empirical analyses. First, occupations within primary production are assigned to *Farm Workers* (11). This class, however, lost its quantitative significance in nearly all industrialized countries over the last century due to increasing urbanization and rationalization of agricultural production (Erikson & Goldthorpe, 1992; Breen, 2004a). Therefore, agricultural workers are collapsed together with the unskilled manual classes in subsequent analyses. Second, self-employed without and with employees outside the classes of managers and administrators and professionals are grouped within the *Petty Bourgeoisie* (9), or in case of the self-employed, in agriculture *Farmers* (10).[27]

The differential assignment of self-employed is in hindsight somewhat problematic (Peng, 2001), although this procedure is directly taken from the construction rationale underlying the EGP scheme (Erikson & Goldthorpe, 1992). It would have been desirable to differentiate small and large employers in order to account for the different types of self-employment (Wright, 1997; Peng, 2001; Oesch, 2006b). Unfortunately, data on the numbers of employees is not available in all employed datasets, so that only class of worker can be employed coherently alongside the occupational class in order to assign the class position. In appendix Table A. 1 of this work, I come back to the question about how to treat the self-employed. I confront the current operationalization with income data to show that self-employment is especially in the middle and lower classes an important asset, whereas in the highest classes the differences in mobility relevant resources are almost always negligible. If one accepts the concavity assumption, i.e., that the utility of educational investment is a concave function of income, there is no reason to believe that self-employment in the highest classes, which already command by far the greatest economic resources, further affect social mobility (Raftery & Hout, 1993). Thus, even where it makes a difference in economic terms it is unlikely that this differences affects parental educational investment. In the lower classes, however, the supplemental analysis shows that economic resources between self-employed and employees differ pronouncedly, hence the differential treatment is warranted here.

There are some properties of the IPICS scheme which are worthwhile to review for clarification. The IPICS class scheme has been specifically developed for the analysis of social mobility in countries whose occupational structure is transforming from industrial to post-industrial occupations. Based on work logic as well as employment relation, IPICS emphasizes horizontal differences between different occupational segments of the society as much as vertical differences between different strata within similar work logics. As such, IPICS does not reflect sectoral differences between service and manufacturing industries, but differentiates manufacturing from interpersonal service occupations. The difference is that

[27] While the inclusion of farmers in (odds ratio-based) analyses of social mobility trends that cover the transition from agricultural to industrial societies (19^{th} century) has proven highly problematic due to the violation of the assumption of homogeneous proportions in the independence model, and may in fact quite substantially affect the outcome (Long & Ferrie, 2013; Xie & Killewald, 2013), it is unlikely (although not impossible) that it affects the following analysis in which farmers are only a middle-sized group, even in the oldest cohorts).

occupations from both segments may be found in either industry. It is not easy to *a priori* determine which of the two differentiations is more important for social mobility. Prior studies have shown that among the EGP service classes, the differentiation in EGP-I and EGP-II is less salient than a horizontal differentiation between technocrats and social and cultural specialists (Güveli et al., 2012). Studies that employ Wright's class scheme (or some derivation) further show that some vertical properties of class membership (skills and property) are more important for intergenerational inheritance than others (authority) (Western & Wright, 1994; Peng, 2001). However, the general importance of education for social mobility and its primarily vertical differentiation caution against overemphasizing the horizontal differentiation at the expense of the vertical one. The maybe disappointing solution is therefore to try to disentangle vertical and horizontal effects without conceptually favoring the one over the other. In fact, to what extent the organizational or the interpersonal hierarchy is more important for life chances very much depends on the institutional context, hence might be very much exogenous to the hierarchies which are based on different work logics. Moreover, IPICS is a 'pure' or structural class scheme, which means that it solely relies on the labor market position and does not take individual characteristics like education or income into account. Therefore, IPICS can be used to study vertical and horizontal class differences with regards to educational attainment, income or wealth from a social class perspective, or used as an additional indicator next to income or educational attainment in a regression model without, by design, violating the "no multicollinearity" assumption of standard least squares estimation methods. The way in which IPICS relates to other important dimensions of inequality like gender or ethnic background is briefly discussed in the following section.

4.3 Gender, race and class

The relationship of class analysis and other axes of social inequality has not always been free of conflicts. Several questions pertaining to the relation of gender, race and class have accumulated over the time and remain relevant until today. More importantly, however, is the assumption that due to the complex interaction of class, gender and race, the changing class composition might affect the way in which class reproduction works (Ch. 7.5). I suggest that the IPICS scheme reduces this problem to the extent that it accounts for occupational gender segregation and minority segregation.

The problem of women's representation in stratification research has been highlighted by critical feminist researchers since the 1970s (Acker, 1973; Goldthorpe, 1983, 1984; Sørensen, 1994; Choo & Ferree, 2010). One of the main criticisms was that class origins were operationalized in terms of paternal occupations only. While this is still the most common strategy, an approach that used both father's and mother's class as a joint proxy for social origins revealed that class mobility chances decreased over the last cohorts in the U.S. (Beller, 2009). While this line of criticism focuses on the operationalization of social origins, other problems arise if one considers current class position. Until recently, men were in many mobility studies the only group that was actually studied (for a recent example ref. Blossfeld, 2014). To be transparent, I present two examples for that claim to which I contributed myself. In Hertel and Groh-Samberg (2014), we study three-generational class mobility in the United States and Germany and only used men with the argument that any other choice would mix occupational mobility strategies with marriage mobility. In another piece on social mobility in the U.S., Pfeffer and Hertel (2015) studied the influence of educational expansion on class and educational mobility across time, again only for men because the change in labor force participation of women has a biasing effect on class mobility trends.[28] While arguments about women's lower employment participation, the bias in trend studies due to the changing labor force participation, and potential selectivity are all valid and true, the standard strategy to frequently accept no data over faulty data – even if that means ignoring up to 50% of the population – is disturbing at best.

Another problem results from the interaction of gender and class. If women populated different positions than men within classes and the relative disadvantage of a class is tied to the relative proportion of both segments (e.g., Busch & Holst, 2011), then a change in the composition of the class might affect the economic possibilities to realize mobility strategies of individuals in that class independent of their sex. This problem is exacerbated if occupational segregation changes over time. Such a development might bias the social mobility trends obtained by conventional social mobility analysis. While there is a theoretical lack of gender sensitive approaches towards the explanations of mobility chances, I also face the problem of how to treat the change in the class compositions. One possible solution is presented by the IPICS classes because the complex interaction of gender and class can be better accommodated if the employed occupational class scheme is sensitive to gender segregation in the labor market. Using the IPICS scheme may, therefore, remedy some of the aforementioned shortcomings because it represents quite well gender segregation. As will be empirically shown in the following chapters, the post-industrial class segment is largely female. Semi-professionals and service workers are frequently women, whereas the industrial classes are

[28] In fact, the restriction to men was necessary due to the small sample. The inclusion of other datasets and laborious work on harmonization generated an ongoing project to analyze women's social mobility patterns alongside those of men in the United States.

dominated by men. The sole exceptions are the clerical and professional classes. While the former is dominated by women, the latter is (increasingly) populated by a non-negligible share of women. While the segments themselves are dominated by either sex, there is also a within-segment gender hierarchy which represents the occupational ghettos described by Charles and Grusky (2004). In each of the four pairs of lower and higher classes across segments, women frequently populate rather the lower than the higher class. Nowhere is this principle of intersecting class and gender domination more clear than with regard to the higher classes in the industrial hierarchy. Managerial positions are overwhelmingly filled with men, while their subordinates, the clerical rank and file, are mostly women. Thus, the opportunity structure is very different for men and women in both countries. Interestingly, the horizontal divide within the IPICS scheme, as will be shown below, captures well the globally similar gender division on the labor market (Charles & Grusky, 2004). While the influx of women into the labor market changes the relative proportion of each class, it does not affect the composition of each class to the same extent as less gender sensitive schemes.

A similar argument can be made about the interrelation of race and ethnicity in mobility studies which employ the class paradigm. While race has been important in the status attainment tradition from its onset (Blau & Duncan, 1967), it rarely figures prominently in mainstream (especially European) social mobility research from a class perspective (but see Hout, 1984a; Kalter et al., 2007; Zuccotti et al., forthcoming). Either only white or non-migrant individuals have been studied or different races and ethnicities are collapsed. If racial and ethnic barriers divert minority members from educational and occupational attainment because they discourage investments or search behavior, and if those minorities are frequent in one class, class and race effects are highly confounded. An example may clarify the issue. In the analysis of three-generational mobility chances in the U.S., Hertel and Groh-Samberg (2014) found a significantly higher social reproduction over three generations of individuals in the lower working class. While these higher immobility chances might be explained in terms of the disadvantaged socio-economic position of unskilled workers, further analysis revealed that this effect resulted from the racial composition in that class. Repeating the analysis for whites only resulted in a smaller and insignificant grandparental effect on class immobility of men in the U.S. (Hertel & Groh-Samberg, 2014, p. 47f.).

While we were able to spot this racial effect by disentangling class and race, problems remain if the effect of race (or gender) is not only cofounded but interacts with class. Again this problem becomes more salient with the analysis of mobility trends if the ethnic or racial composition of classes, or the interaction of class effects and minority attributes, changes over time. If the lowest classes are composed increasingly of an “underclass” defined in racial, ethnic and cultural terms, mobility chances may worsen over time, for instance, due to increasing racism after 9/11 or other forms of discrimination. While this alone might be problematic for trend analyses, cumulative disadvantages might further affect the class-specific social mobility chances (DiPrete & Eirich, 2006). The IPICS scheme remedies this problem at least partly by mapping the ethnic composition more clearly in terms of class position. While the gender distribution is primarily a horizontal and secondarily a vertical phenomenon in the IPICS classes, racial stratification enters into the class scheme primarily vertically. Whether one considers the share of foreign born or the share of minorities, the vertical ordering of classes is represented by the shares of minorities in both countries. The lower the class, the higher the minority share within that class. Especially the manual working classes absorb a huge portion of the incoming immigrants, most likely because low-skilled industrial work rarely requires strong language or communicative skills. Consequently, vertical mobility patterns and chances cannot be simply understood in terms of economic class only, but need to be seen in light of the various racial and ethnic advantages and disadvantages that foster or impede mobility. Most importantly, the opportunity structure differs by race due to the different forms of legal and economic discrimination which again affects preferences and decisions (Wilson, 1980 [1978], p. esp. 105ff.).

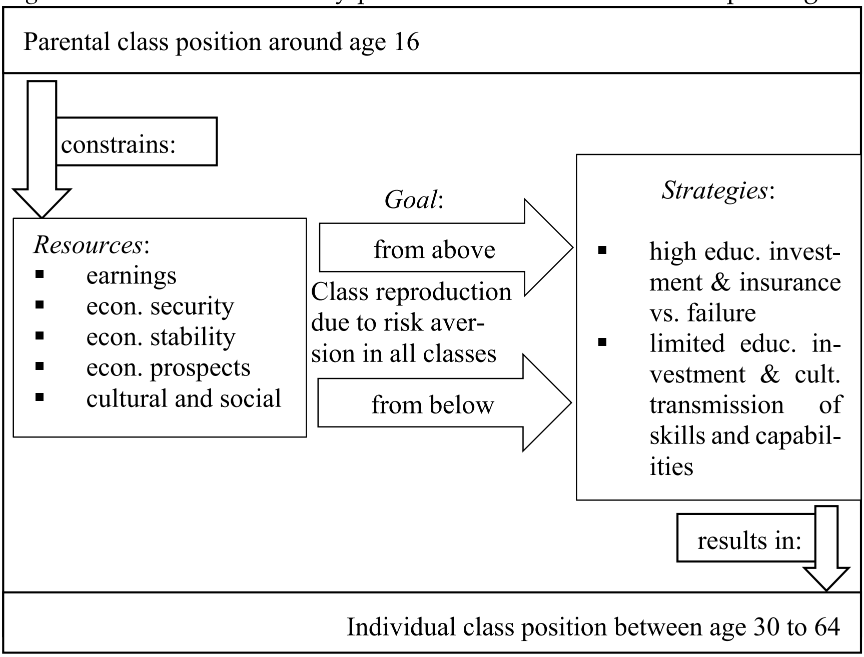
While the changing composition of classes with regard to gender or minorities may question trend analysis of social mobility in general, the employed IPICS classes allow for the partial integration of class differences and other axis of inequality into one conceptual scheme. While the IPICS scheme may represent a better alternative, the problem of the interaction between class, race and gender continues to exist also with the IPICS scheme. To account for the genuine intersectionality of inequality, I use two strategies. All analysis will be performed separately for men and women and where feasible also for each race or ethnic group in order to indirectly decompose the total effect into ethnic or racial components. Where this is not possible because of the low numbers of observations, I will interpret class in the following as a generic term integrating occupational class characteristics as well as racial and gender characteristics, which all affect the horizontal and vertical social stratification and its reproduction. The next and last section of chapter 4 is dedicated to the crucial question whether and to what extent social mobility differs between the industrial and the post-industrial segments of the class structure. Therefore, various hypotheses about class-specific mobility chances and outcomes of the status attainment process will be developed in the following section.

4.4 Social mobility and IPICS

For more than twenty years, a clear division of work existed between the sociology of educational inequality and social mobility research. The latter was usually concerned with comparisons of societies' social fluidity and the description of absolute trends of social mobility (Erikson & Goldthorpe, 1992; Breen, 2004a). Research on educational inequality, on the other hand, was concerned with class differences in educational attainment (Raftery & Hout, 1993; Shavit & Blossfeld, 1993; Goldthorpe, 1996; Breen & Goldthorpe, 1997; Hout, 2006b; Breen et al., 2009, 2010). Only recently were both approaches combined, resulting in the combined study of educational attainment and social mobility (Breen & Jonsson, 2007; Breen, 2010; Breen et al., 2013; Breen & Karlson, 2014; Pfeffer & Hertel, 2015). While the methodological developments are impressive, theoretical developments are rare and analysts frequently explain trends in social mobility ad hoc with (changing) institutional settings or remarks on the unequal distribution of resources. A pleasant exception is the theory of social mobility proposed and elaborated by Goldthorpe (Erikson & Goldthorpe, 1992, p. 376ff.; 393ff.; Goldthorpe, 2007c, pp. 154-188). While I have developed a descriptive account about the historical development of mobility chances in Ch. 2.3, this chapter will now focus on explaining differential mobility chances.

From Goldthorpe's perspective, the explanation of class-specific differences in mobility chances is based on the interrelation of resources, goals and strategies (Figure 9). Resources, goals and strategies are related to each other using the premises of rational action theory, which argues that decisions are based on a (subjectively bounded) rational evaluation of the utility of different alternatives which are functions of the respective direct and indirect costs and the success probability (Breen & Goldthorpe, 1997). The class structure itself enters the scene twofold. On the one hand, it reflects the overall opportunity structure in terms of class destinations. On the other hand, the origin class structure constrains the available resources that are invested in children's class attainment process. Resources differ by class in terms of at least four crucial characteristics that constrain available strategies towards mobility. Current earnings, economic security, economic stability and economic prospects differ by class and hence affect the evaluation of the costs of investments into offspring's educational and social activities. Much like preferences in economic models, mobility goals, however, are exogenous to the process of mobility. The assumption is that parents, independently of class (or any other social influence, for that matter), prioritize status maintenance, i.e. they prefer strategies which avoid downward mobility, even at the expense of those strategies which may result in achieving upward mobility (Breen & Goldthorpe, 1997). The status maintenance motif is of some importance because it links a special blend of methodological individualism (i.e. the situational subjectively bounded rational action theory) and differential resources to explain class differences in educational attainment from a micro-perspective without referring to class-cultural (read: collective) attitudes or preferences to explain such action (Goldthorpe, 1996; 2007b: Ch. 7).

Figure 9: Social mobility processes in the rational action paradigm



Note: Own adaptation from description in Goldthorpe (2007c, pp. 154-185).

Assuming status maintenance, two basic mobility strategies evolve from the opportunity structure and resource constraints (Goldthorpe, 2007c, p. 169ff.). First, parents and children in lower classes limit their investment into educational attainment and prioritize vocational over general education in order to achieve an intergenerational comparable class position. This strategy minimizes the risk of failure and accounts for relatively higher direct costs (e.g., tuition fees) and indirect costs (e.g., foregone income due to longer schooling). The second strategy reflects the goal of intergenerational class stability within higher classes. Given the importance of education for entering into higher class positions, direct (e.g., private schools and elite colleges) and indirect (e.g., high class neighborhood) investments into academic education of the offspring are the most important strategies to achieve immobility. The success of parental investment strategies may be secured further by the transmission of cultural and social capital that fosters immobility. Inherited knowledge and capabilities, as much as contacts, may permit entrance into some skilled trades or specialized commerce more easily than a general vocational degree. Similarly, social contacts and networks, but also sheer wealth, may insure high class families against educational failure of their offspring by offering alternative routes to similar class positions (Pfeffer & Hällsten, 2012). Whether parents can afford to sponsor their offspring's economic enterprise or social contacts may effectively facilitate transitions into an occupation that would be otherwise closed – the basic idea is that high class families may be able to reproduce high class positions over generations in spite of individual failure. Consequently, overall relative mobility chances are characterized by inter-temporal stability and cross-country similarity.

Within each nation the distribution of classes reflects the distribution of advantages and disadvantageous across classes. Even if disadvantages are comparatively small in absolute terms, for example because of low income inequality, relative resource differences would still render the overall pattern of mobility chances similar compared to countries in which earnings are widely different. Similarly, potential equality enhancing institutional changes like educational expansion and decreasing costs of (secondary) schooling fail to produce more equal mobility chances over time because actors use the institutional landscape to enhance their offspring's chances of being immobile rather than to enhance upward mobility over time (Goldthorpe, 2007c, p. 178). Thus, even if the expansion of secondary (and tertiary) education allows more children born into lower classes to remain longer in education, higher class households will also exploit these new opportunities to inherit their higher position (Raftery & Hout, 1993). Although absolute mobility may rise due to changes in the educational system, increasing mobility chances are rather small in magnitude (Breen, 2010). It seems to be warranted, therefore, to expect that the amount and quality of resources available to high class families allow for the inequality structure to reproduce rather than change decisively across generations in spite of absolute upward and downward mobility (Erikson & Goldthorpe, 1992; Breen, 2004a).

Recent findings, however, cast doubt on the assumption that (anticipated) economic costs are the driving force behind educational choices (Stocké, 2007). At the same time, the relationship between socio-economic origins and educational choices seems not to be mediated by either risk aversion or time discounting preferences (e.g., deferred gratification). In fact, recent analyses in this regard demonstrate that – at least in Denmark – neither risk aversion nor time discounting preferences matter for the educational decisions among students from high class backgrounds (Breen et al., 2014). These class differences are hard to explain, especially if sociological explanations recurring on the effect of class-specific socialization or class culture on mobility strategies are so wholeheartedly discouraged (Goldthorpe, 2007c, p. 185). In light of a long tradition of quantitative and qualitative research studying class-cultural effects on educational attainment (i.e., social mobility), this negligence is hardly understandable (Kohn, 1963, 1969, 1976; Bourdieu & Passeron, 1977; Willis, 1977; Bourdieu, 1996).

In a recent contribution, Rogge and Groh-Samberg (forthcoming) criticize the theory of educational decision making (and in extension, the theory of social mobility) as too abstract to explain the persistence of unequal educational attainment and social fluidity. The critics argue that costs as well as the utility of any given educational decision is class-specific, which consequently begs the question as to why lower (middle) classes more frequently decide for rather vocational tracks and shorter periods of schooling (even if capacities would justify prolonged schooling). From that perspective, status maintenance becomes the explanandum rather than constituting an *a priori* explanans (Rogge & Groh-Samberg, forthcoming, p. 5). Based on Bourdieu's praxeologic theory and the literature on identity formation, Rogge and Groh-Samberg show that status identity, and hence maintenance, is inculcated within families during primary socialization and adopted by individuals in a dialectic process which advantages a positive evaluation of the own origins and the devaluation of other social strata (Rogge & Groh-Samberg, forthcoming, pp. 13-18). Far from arguing in favor of a reductionist individualism, the literature quoted by the authors shows that this process is class-specific such that the preferences and practices that will inform actors in the eventual decision are embedded in the structural position in which they are formed. Thus, it is not so much the promise of status reproduction or the fear of failure which persuades individuals from low socio-economic backgrounds to more frequently choose vocational trainings or lower educational certificates, but it is a "sense of entitlement" which results in choices that fit to the social background (Bourdieu, 1984, 1996). Consequently, any given decision which is based on the status motif can hardly be analyzed within the single situation, but has to consider the preceding phase of status formation within the individual.

While Rogge and Groh-Samberg doubt the explanation of persistent inequality, their counterproposal effectively predicts similar stratified educational choices and unequal mobility chances. What renders their theoretical contribution attractive for this study, however, is that they offer the opportunity to argue for horizontally different mobility chances in spite of similar material conditions. In their view, culture allows us on the one hand to account for the social distance between social classes (Bourdieu, 1984). On the other hand, cultural distance can also account for the otherwise inexplicable (dis-)affinities between certain classes regularly needed to satisfactorily model the observed pattern of social fluidity in intergenerational mobility analyses (Erikson & Goldthorpe, 1992). Moreover, a notion of class-cultural traits further allows for the introduction of the institutions of social selection, like schools or employers, into the study of social mobility (Willis, 1977; Bourdieu, 1996; Lareau, 2003, 2015). Thus, the avoidance of downward mobility and resource constrains, as important as they might be, are arguably not the only effective barriers to upward or downward mobility. Class-specific preferences and practices advantage the offspring of academics in the educational world, e.g., through practices emerging from concerted cultivation (Lareau, 2003; Devine, 2004; Vincent & Ball, 2007), and benefit the children of the rich in gaining riches themselves, e.g., through entrance to invitation-only clubs (Kendall, 2006). Moreover, the inoculation with class-specific social norms allow for the acceptance of comparatively low or even stigmatized positions as reference frames for mobility strategies (Lamont, 2000).

Such a class-cultural approach presupposes the importance of meso-level institutions that function as gatekeepers and regulate the entrance to, and subsequent socialization in, occupational classes. One account that stresses the importance of occupational associations as well as educational facilities for occupational transmission is the micro-class approach (Grusky & Sørensen, 1998; Jonsson et al., 2009). From this perspective, occupational institutions are of paramount importance for understanding the socio-cultural reproduction of occupational classes. Occupational associations define and lobby for rules of entrance to occupations, try to establish and defend task monopolies or determine compensation and enforce coherent sets of cultural practices, norms and beliefs that are not only crucial for the work environment but also translate into everyday situations (Weeden & Grusky, 2005a, p. 9ff.). Not only occupational associations, but also schools and vocational training institutions are important for nursing social norms, preferences and personality traits that affect the returns to schooling (Bowles & Gintis, 2002). In order to account for affinity and social distance between IPICS classes, I now describe the crucial skill sets and associated class-cultural patterns within each class.

Social mobility between IPICS classes

The crucial argument for horizontal and vertical differences affecting mobility chances rests on the different resources parents obtain from their work to invest into their offspring's status attainment process. Following the pathbreaking work of Kohn (1963), Bourdieu (1984) and others, I assume that the parental working environment affects (parenting) practices within families and, consequently, exert some influence on children's educational and occupational preferences, skills and talents, which all lead to class attainment in the end. As we have seen, the differences in mobility chances between EGP classes mostly result supposedly from the differences in available economic assets over time. Similarly, research into the effect of cultural capital and practices on educational attainment frequently employs the primarily vertical EGP scheme (Sullivan, 2001; Scherger & Savage, 2010). In the following, I will extend the idea of influential parental cultural practices by focusing on different sorts of inherited cultural captial within each pair of classes in the higher and lower part of the industrial and post-industrial class segment. Thus, cultural resources are further differentiable horizontally by the type of assets and resources that incumbents of employee classes obtain and cultivate. When it comes to immobility, Jonsson et al. (2009) argued that occupation-specific skills, culture, taste, networks and economic resources foster class reproduction. Although I do not accept their micro-class approach as a feasible strategy in this work, I follow their insight that resources obtained on the job foster intergenerational immobility. Far from being deterministic, I assume that preferences, skills and abilities which parents deem useful and important in their occupational environment are frequently also applied in daily leisure time activities, affecting the socialization of their children to various degrees. Moreover, children may exploit their parents' networks to find suitable internships, discuss educational and occupational targets and inform themselves about the occupational opportunities ahead (Jonsson et al., 2009, p. 987). Although skills and networks inherited by parents may be occupational in nature, I think that they can be gainfully grouped.

I assume that classes differ according to four types of skills and resources, i.e. organizational, technical, academic and primarily social skills. Of course, individuals in each class may utilize other resources also on the job. However, on average the above-mentioned resources are presumably the most important assets for incumbents in the respective classes. Additionally, classes are sorted vertically with regards to the economic capital capturing the different degrees of economic adventages that go along with more advantageous employment relations, i.e., higher positions due to skill assets or authority.

Managers and administrators and clerks and officers comprise classes in which organizational assets are most important for the daily work experience. Organizational skills presuppose that incumbents within these classes are able and willing to subordinate to the aims and rules of the employing organizations. Although endowed with different economic and cultural resources, both classes are bound to formal rules and organization-specific rationalities. The high degree of loyalty towards the organization leads them "to prefer market solutions and free exchange and to have an idea of community which is more authoritarian, paternalistic and organization-centered" (Kriesi, 1998, p. 169). If these authoritarian and paternalistic sentiments are inherited, their offspring are more prone to positions embedded within organizational cultures themselves. This organizational orientation, finally, may also come into play with regards to child rearing techniques. Although leisure activities appear to be as rigorously cultivated within families of managers as they are among professionals (Devine, 2004; Kendall, 2006), a potential authoritarian parenting style may effectively divert children away from many socio-cultural and professional occupations towards more hierarchically structured jobs in the (private) economy or in large bureaucracies. While clerks and officers may be additionally constrained due to limited economic resources, managers and administrators have more economic, cultural and social resources at their command, which may help to overcome any disadvantage obtained through overtly authoritarian child rearing practices. Moreover, clerks and officers may, due to their more subordinate position within organizations, more readily demand conformity to institutional rules from their children, whereas managers and administrators are more used to creating rules themselves. While the former may prevent children from taking full advantage of the possibilites of (educational) institutions, the latter might in fact motivate children to go their own way even if that results in conflicts with authorities.

Technical and vocational skills are the most important assets of skilled and unskilled manual workers at the bottom of the industrial hierarchy. Their work is organized around technical parameters and presupposes the mastery of technical skills. Occupational skills in crafts and trades are more frequently applicable within the family context than skills in other classes, compare e.g., home renovation or repairing a car versus writing a press release or preparing an injection. In general, these skills are obtained either on-the-job or in vocational schools and apprenticeships. Thus, at least skilled manual workers are arguably familiar with the educational system, if only with its vocational tracks, and occupational opportunities within their crafts and trades. Nevertheless, lacking resources and unstable future prospects limits economic investments into child enrichment activities and might reduce the mobility prospects of children. Therefore, upward mobility chances can be expected to be comparatively low, especially for the offspring of unskilled manual workers who might lack both resources and a familiarity with the institutions for excelling in educational selection (Bourdieu & Passeron, 1977; Lareau, 2003). Hence, the social distance between the technocratic managerial and administrative classes and the manual classes is lower than the distance between the latter origins and the professionals

(Güveli et al., 2012). Immobility or short-range mobility can also be expected to be pronounced in the manual working classes because working class identities are frequently formed around craft-centered working class institutions, like trade unions and vocational training, but also in the public media. The lively image of a social, friendly and professional blue collar working class might attract children of the working class despite potentially hazardous working conditions and limited economic prospects (Kendall, 2011).

Professionals and semi-professionals have a strong commitment to their occupational culture and the importance of academic knowledge. In fact, academic skills are of utmost importance for the entrance to these classes. Resulting from the high degree of autonomy on their jobs, (semi-)professionals embrace progressive and community oriented attitudes (Kriesi, 1998, p. 169). Arugably, professionals' parenting styles therefore emphasize debate and encourage children's active participation in schools more than in other classes. Similarly, they are not only accustomed to the educational system as such, but crucial working techniques, e.g., reading or open discussion, are frequently similar or conducive to the educational skills used by their children in schools (Graaf et al., 2000). Therefore, parents within the professional class are especially successful in the "concerted cultivation" of their offspring (Lareau, 2003). Parents are well aware of the expectations their children face within the educational system (Devine, 2004). The higher level of autonomy may not only cultivate self-management techniques within (semi-)professions, but also encourages the management of their children. Moreover, high economic resources and networks within the professional community further allow for high rates of social reproduction and even upward mobility within this quadrant.

In their daily work, skilled and unskilled service workers frequently interact with clients, customers or colleagues in order to produce or sell a certain service. Hairstylists, servers and police officers usually spend a large part of their working time relating to the customer in order to achieve their goals. Communication is of great importance, whether for the quality of the provided service, e.g., in case of customer service representatives or personal trainers, or for achieving an adequate remuneration through tips and gratuities, e.g., in the case of repair workers, hairstylists or servers. Although one could expect that the communication skills enable service workers to teach their offspring the needed verbal skills to excel in formal education, it is rather likely that the everyday subordination in the servant-client relationship favors also authoritarian child rearing approaches. Moreover, the lack of knowledge regarding educational institutions further limits their capacity for helping their children navigate the school system. But even where the social capacities of the workplace translate into a culture of dialogue at home, low and unstable economic resources are likely to prevent a concerted cultivation in its pure forms. Thus, the upward mobility chances of the offspring of service workers are likely to be limited.

Following from this discussion, one can create several tentative expectations for horizontal and vertical differences in mobility preferences (Table 7). These expectations are of course rather illustrative because they overemphasize the effect of parental class on mobility by ignoring any other influence that an individual's life course, i.e. vocational training, internships, etc., may have on the generation of preferences. First, members of all classes are likely to remain within their respective quadrant due to the immobility inducing elements linked to the class-cultural context responsible for the class reproduction. Status maintenance further increases preferences for lateral mobility between vertically similar positions between segments. Moreover, the difference in parenting styles results in relatively low preferences for upward and downward mobility patterns between high and low class positions. While vertical barriers are very much in line with the work of Erikson and Goldthorpe, I may further discuss the potential of horizontal or vertical affinities and social distances. The importance of vocational training in both skilled manual and skilled service positions creates some social proximity and similarity of typical school-to-work trajectories in both classes. Moreover, skilled and unskilled classes across the industrial/post-industrial chasm are similar in their relative position at the bottom of the stratification order. Thus, these classes are likely to display some affinity. However, the segmental divide between the working classes is also likely to affect the mobility preference, although it is likely that gender differences prevent men from entering female-dominated working classes and vice versa. To a lesser degree, clerks and officers share with the manual workers the working context that is specific to large employing organizations, whereas their daily work experience also consists of interpersonal communication resembling to some extent the everyday work experiences of service workers. However, due to pronounced resource differences between the white collar office workers and the semi-professionals, I argue that preferences for such mobility trajectories are comparatively small given the educational investments necessary for such a trajectory. Thus, I also expect here a greater affinity between clerks and officers and the four working classes. While managers and administrators differ substantially from (semi-)professionals, I expect some typical horizontal mobility across generations, such as reproduction through educational rather than organizational or economic resources. The increasing importance of educational credentials in the business world and the expansion of large public bureaucracies which explicitly select personnel based on educational attainment further strengthens the link between professionals and managers and administrators.

Table 7: Mobility preferences by social origins[29]

		Industrial destinations				Post-industrial destinations			
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW
Class Origins	Managers & administrator	+++	-	-	--	++	-	-	--
	Clerks & officers	+	+++	+	+	--	-	+	+
	Skilled manual workers	-	+	+++	+	--	+	++	-
	Unskilled manual workers	--	-	+	+++	--	-	+	++
	Professionals	+	-	--	--	+++	+	--	--
	Semi-professionals	-	-	-	--	+	+++	-	--
	Skilled service workers	--	+	++	+	-	+	+++	+
	Unskilled service workers	--	+	+	++	--	-	+	+++

Note: Preferences for mobility are argued to be either very high (+++), high (++), moderately high (+), low (-) or very low (--).

Following from the discussion in Ch. 4.3, expectations about mobility patterns and chances need to consider to the existence of gender stereotypes, gender roles, discriminatory hiring practices and other processes that affect class attainment (England, 1992; Charles, 2005; Weisgram et al., 2010; Busch, 2013). While women are more likely to enter into lower grade and routine non-manual positions, i.e. semi-professional, clerical, skilled and unskilled service work, men are more likely to enter into managerial, manual and professional positions (Charles, 1992; Charles & Grusky, 2004). In fact, the post-industrial interpersonal service working classes are more likely to coincide with heightened gender segregation because they correspond not only to some extent to the tasks which are generally equated with female (house) work, but because they are themselves a result and a cause of the commodification of care and health work in the service industry (Charles, 2005). At the same time, manual and managerial work corresponds to the social constructs of masculinity and manhood that increase the likelihood of social reproduction in, and mobility to, these classes. Race finally enters the picture even more indirectly because classes who do less well represent the unequal distribution of minorities. There can be little doubt that upward mobility, driven not only by affirmative action but also by a floor effect and corresponding structural change, positively affected mobility chances at least in the middle of the twentieth century

[29] It is important to note that the above-made assumptions about mobility preferences and possibilities are likely to be influenced by the occupations of both mothers and fathers. Although we only have information on parental origins from fathers, mothers' occupational class and educational attainment should also influence mobility preferences and available resources within the household. Notably, these preferences are strongest in households where both parents come from the same class, i.e. in situations were assets, skills and resources cumulatively affect children's class attainment.

(Hout, 1984a). Due to the recently stagnant convergence of various socio-economic measures between white and African Americans[30] in the U.S., we expect a polarization of mobility patterns with regard to ethnic and racial background at least in the last decades (Leicht, 2008; Maralani, 2013; Mazumder, 2014). Nevertheless, the high share of minorities in the lower working classes, especially in the industrial segment, nourish the expectation that mobility barriers between the unskilled labor classes are in part not only due to class but also due to ethnic or racial origin.

[30] Due to the power of labeling, I use in the following the (not hyphenated) term African American to address Americans with African ancestry (Smith, 1992). As compound adjective preceding a noun the term will be hyphenated as in African-American men.

5 Horizontal and vertical stratification of occupational positions

It is good practice to test the validity of a new tool or a new operationalization of an old tool before it is applied in actual research. Validating a measure consists of testing whether it reflects the underlying theoretical logic (criterion validity) and at the same time accounts for meaningful horizontal and vertical differences with regards to several socio-demographic outcomes (construct validity) in the United States and Germany (Evans & Mills, 1998). Despite what the testing language seemingly implies, validity cannot be proven once and for all in social sciences because, firstly, we work with one proxy for several latent properties and, secondly, both our measure and what should be measured may change over time or even through the very act of observation.[31]

What one can look for, however, are meaningful relationships between the IPICS classes and other measures sensitive to the horizontal and vertical cleavages that arguably underlie the scheme's differentiation in classes. The aim of criterion validation is to show that the latent construct of social class and the manifest operationalization are to a satisfying degree in concordance. While the IPICS classes are operationalized solely on the basis of occupational codes representing typical tasks and work settings, we use alternative indicators which are argued to measure work logics and employment relations. If these secondary measures vary across classes as can be theoretically expected, the scheme is validated through external criteria. The construct validity of IPICS, on the contrary, is done by examining whether the IPICS class scheme predicts social inequalities in dimensions which can safely be assumed to be stratified by social class. For validating the scheme, we initially develop dimensions for work logics and employment relations and discuss the indicators that serve as either outcome of, or criterion for, social stratification. In the remaining sections of the chapter, we will analyze these horizontal and vertical characteristics by cross-tabulating IPICS classes and indicators. The

[31] If, for example, a sociologist's political recommendations for fighting extreme inequality based on her measure of poverty are completely adopted by politicians (very unlikely) and, consequently, the measured form of poverty ceases to exist (even more unlikely), new forms of poverty may come into existence which the poverty measure does not capture any more.

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chapter finishes with a discussion of the observed pattern and summarizes key characteristics of each class.

5.1 Testing the validity of the IPICS classes

The question of interest is whether the IPICS classes differ with respect to occupational characteristics in the way its theoretical foundations would predict. For this purpose, we must first derive dimensions that differentiate the work logic on which the *horizontal differentiation* between industrial and post-industrial classes is based (see Table 8). As stated above, work logics differ with regards to work setting, prevalent primary orientation and authority relation. While the industrial work logic is characterized by an orientation towards the organization and a bureaucratic work setting, the post-industrial work logic is characterized by the face-to-face service setting and a primary orientation towards customers (Oesch, 2006b, p. 65). Unfortunately, surveys generally not contain questions about the work logic dominant in respondents' line of work (Oesch, 2006b, p. 94). Neither do I have information on work commitment that may inform us about different orientations (Gallie et al., 1998, p. 234ff.).[32] One can however test whether typical horizontal differences exist between industrial and post-industrial class sectors. The set of indicators used may not be directly related to work logics, but are taken as advantageous for the formation of such work logics.

Table 8: Expectations about horizontal class differences

Dimension	*Indicators*	*Industrial*	*Post-industrial*
Work setting	Public Service	Low	High
	Firm Size	High	Low
Authority structure	Supervisory Status	High	Low
	Monitoring Status	High	Low
Work organization	Temporary Contract	Low	High
	Part-time	Low	High
Gender composition	Women	Low	High

[32] Data that could prove useful for this task is the data from the O*NET database. Unfortunately, the occupations in the respective datasets are coded in the standard occupational classification which differs from the ones employed in this study. I plan to use the O*NET data base in future applications to validate the IPICS scheme more directly.

As emphasized by Oesch, the interpersonal service setting is characterized by a strong commitment towards the customer (Oesch, 2006b, p. 110ff.). Public administration scholars singled out a public service motivation that is characteristic for civil service employees (Perry & Wise, 1990; Perry, 2000). Among the dimensions for this specific motivation are an attraction to public service, commitment to public values, high levels of compassion, a certain leaning towards self-sacrifice and strong feelings about social justice and civic duty (Perry, 1996; Kim et al., 2013; Prebble, forthcoming). Besides socialization within the public service that fosters these values over purely instrumental rationality, it is assumed that individuals who do have these attributes are more likely to work in public service, either because of self-selection or recruitment preferences. Arguably, these attributes correlate with orientation towards customers, higher degrees of social skills and a face-to-face work setting. In contrast, research into work values shows that private sector employees value both organizational commitment and prestigious work significantly more than employees in the public sector (Lyons et al., 2006). Hence, I use *public service*[33] employment as a proxy for advantageous conditions under which interpersonal work logics strive.

Second, Esping-Andersen assumed that post-industrial occupations are characterized by flat hierarchies, whereas industrial classes are more characterized by large bureaucratic organizations (Esping-Andersen, 1993). Arguably, larger firms are more prone to the formation of organizational hierarchies and firm-centered values, whereas small firms are more dependent on customers or the business environment which favors the creation of a customer-friendly orientation. The claim that work logics vary with firm size was supported by Oesch, who finds that occupations within the interpersonal service logic are more prevalent in smaller than in larger firms whereas the organizational work logic more frequently exists in larger production units (Oesch, 2006b, p. 109). Thus, the *firm size* is employed as a proxy for the prevalent work logic.

Additional related differences between industrial and post-industrial occupations are the authority structures (Esping-Andersen, 1993). Post-industrial occupations are positioned rather within flat hierarchies, while industrial positions are part of a clear chain of command. Preferably, one would have data on workplaces and their interrelation within firms. Lacking such data, I test for differences in the authority structure by analyzing the prevalence of *supervisory status*. The higher

[33] Qualitative research suggests that occupational characteristics might be more important than the employment sector for some of the attributes associated with public service motivation (Waldner, 2012). One has to keep in mind, however, that public sector employment includes not only office clerks and administrators, but also teachers, doctors, (assistant) nurses, police officers and other interpersonal service occupations.

the frequency of supervisory status, the more class incumbents are part of hierarchically structured organizations. In the U.S., I also provide data on the *monitoring status*, i.e. whether or not an individual has a superior at work.

Industrial and post-industrial occupations differ also with the type of work organization. Standard employment contracts (in line with the male breadwinner model) are characteristic for Fordist industrial classes, whereas fixed-term positions, part-time employment and the higher reliance on external labor markets, e.g., through contracting, are more characteristic for post-industrial occupations (Piore & Sabel, 1984; Osterman, 1994; DiPrete et al., 2002).[34] As proxy for typical work organization, I therefore employ the prevalence of *temporary contracts* and *part-time employment*[35] within each class. What matters here is that non-standard employment should be more likely in post-industrial than in industrial classes (Kalleberg, 2001; Kashefi, 2011)[36].

The final indicator of horizontal differences is the share of *women* within each class. One of the factors that initiated post-industrialization itself is the commodification of care and interpersonal services which have in the Fordist era been traditionally produced by housewives. While the numerous positions created in the social service sector following the expansion of the welfare state and the educational system offered employment opportunities for the growing number of working women, they also provided the services which allowed women to work without forcing a change in the gendered division of labor (Esping-Andersen, 1993, 1999). Consequently, post-industrialization perpetuated occupational segregation (Hall & Soskice, 2001; Charles & Grusky, 2004; Charles, 2005). I therefore expect that women are clearly overrepresented within the post-industrial classes, especially the bottom working classes, whereas men are more likely to work in the industrial class segment.

The *vertical differentiation* within the IPICS scheme is supposed to map class differences according to typical employment relations derived from the role they play within the production process (ref. to Ch. 4.2). While higher class positions represent service relationships either granted through the skill set or through the authoritative position in the domination process, lower ones resemble the underlying labor contract (Wright, 1997; Goldthorpe, 2007c). Work within the middle classes is regulated through mixed employment relations. Arguably, the vertical

[34] Of course, post-Fordist employment relations also encourage the externalization of labor costs through the usage of fixed term or part-time contracts in the lowest manual classes (Vidal, 2011).
[35] Part-time employment is defined as working 34 hours per week or less.
[36] Kashefi finds with regards to the implementation of high performance work organization little difference between employees in service and manufacturing industries (Kashefi, 2011, p. 555). However, Kashefi employed individual instead of firm level data, so the analyses are therefore not directly comparable.

characteristics are distributed similarly among industrial and post-industrial classes on each hierarchy level. Following Evans work, I analyze four different dimensions of prevalent employment relations (see Table 9). Evans and colleagues performed various analyses validating the Goldthorpe class scheme based on occupational characteristics like type of payment, monitoring of work time, career prospects, promotion chances, various autonomy items and information on contract type (Evans, 1992; Evans & Mills, 1998, 2000). If available, I use similar indicators, but content myself with a simple examination of the respective criteria's distributions across classes instead of more complex methods like latent class analysis.

As measures for characteristic employment relations, I study first indicators for the difficulty of monitoring and the specificity of human assets. The former is measured by *prevalence of supervision*, *number of monitored personnel* and the level of *work autonomy*. The underlying argument here is that monitoring tasks indicate higher structural positions because supervision of supervisors is more complicated and costlier. With regard to supervisory tasks, the number of individuals supervised may be the best proxy for variations in complexity, hence class position. The work autonomy measures used here represent the extent of freedom employees have in the organization of their daily work. Human asset specificity is measured by the share of occupations that are characterized by *no asset specificity*, i.e. they presuppose little more than brief on-the-job training. Additionally, three more dimensions that may reflect the vertical differentiation are studied. First, the temporal variability of work arrangements is studied as a criterion for the vertical position of classes.

One of the crucial differences between the service relationship and the labor contract is the temporal perspective implied by the respective type of contract. While the former is usually a long-term relation, the latter is more easily dissolved. At the same time, temporal variability also frequently indicates non-standard employment (Kalleberg, 2000). Clearly, "bad" jobs are more likely to be associated with lower class positions than higher class positions (Kalleberg et al., 2000). I analyze temporal variability through studying the *prevalence of fixed-term contracts* and *atypical work schedules*. Second, employment relations stratify employees with regards to their material life chances, especially with regards to work remuneration, economic security and prospects (Goldthorpe & McKnight, 2014). Therefore, I analyze the variation of *fringe benefits* and the variation of *means of payment* across classes as criteria for the economic volatility. Finally, career prospects are studied in terms of vertical differences regarding status instabilities due to *unemployment incidences.*

Table 9: Expectations about vertical class differences

Dimension	*Indicators*	*Higher Classes*	*Lower Classes*
Employment Relations	Supervisory Status	High	Low
	Number of Subordinates	High	Low
	Work Autonomy	High	Low
	No Asset Specificity	Low	High
Temporal Variability	Fixed-term Contracts	Low	High
	Work Schedule	Regular	Atypical
Work Remuneration	Fringe Benefits	High	Low
	Means of Payment	Regular	Atypical
Status Stability	Unemployment Risk	Low	High

After having defined the indicators according to which IPICS should reasonably differentiate occupations in order to satisfactorily resemble the theoretical logic, I will now assess empirically the schemes validity. Unless indicated otherwise, data employed in the following are taken from the 2012 *General Social Survey* (GSS) and the 2012 *Allgemeine Bevölkerungsumfrage der Sozialwissenschaften* (Allbus). For a detailed description of the data sets refer to Ch. 6. The analysis samples are restricted to the working population aged 18 to 64 at the time of the interview. Because we are primarily interested in class cleavages, we do not differentiate by gender, race or ethnicity. All statistics are calculated using population weights to establish national representativeness.

5.2 Horizontal differences between occupations

Table 10 presents several indicators that differentiate industrial from post-industrial class positions in Germany. We ignore at this point vertical differentials and concentrate solely on horizontal differences between similarly ranked positions in both segments. With regards to the work setting, we find the share of *public service* employees is 1.5 to 2 times higher in post-industrial classes than in comparable industrial classes. This is especially true for manual workers, of which around 90% work in private enterprises. Corresponding to the higher education of civil servants, unskilled service workers are relatively seldom in the public service (Rose, 1985; Gornick & Jacobs, 1998). However, their share is with 14% still higher than the share of public employees among unskilled manual workers. Partly supportive are the findings with regards to *firm size*. Displayed are the class-specific ratios of the number of employees in small and medium-sized firms (<100 employees) to the corresponding number of employees in large enterprises (>200). While we would have preferred to contrast employees from really small enterprises (<25) with those from medium to larger firms (>100), we decided for the lowest common denominator available in both countries (Oesch, 2006b, p. 107f.). Especially skilled (1.2)[37] and unskilled service workers (1.6) are more likely to work in smaller than larger organizations as compared to the industrial manual workforce (both ~ 0.9) (Bellmann & Stegmaier, 2010). Similarly, clerks and officers, the backbone of large public and private bureaucracies, are more likely to work for large organizations (0.6). While firm size varies with work logic in the lower classes, occupational characteristics may be of more importance for the existence of flat hierarchies among higher classes. The rather high probability that managers (1.2) work in middle and small sized enterprises underlines that managers and administrators are a class comprising of directors of public agencies and CEOs as much as managers of medium-sized craft or small artisanal establishments. One should, however, not overrate this class's heterogeneity. It still differs significantly from the petty bourgeoisie (12.7) comprising nearly exclusively small shop owners or self-employed without any employees. The relative high propensity for professionals (0.8) and (semi-)professionals (0.6) to work in rather large production units is driven by accountants, medical doctors and scientists, but also nurses and technicians, who are most likely to work for large employers like state agencies, universities or hospitals.

[37] A value of one signifies equiprobability, i.e. class members are evenly employed by large and small organizations.

Table 10: Characteristics indicating horizontal differences, Germany

	IPICS Class	Work Setting		Authority		Work organization		Gender
		% publ. service	$\frac{N_{small}}{N_{large}}$	% supervisors	% subordinates	% fixed term*	% part-time	% women
I	Managers & Adm.	21.1	1.17	91.0	n.a.	5.7	7.4	33.4
I	Clerks & Officers	32.7	0.59	39.4	n.a.	7.1	32.7	70.8
I	Skilled Manual W.	7.1	0.90	49.7	n.a.	7.7	3.9	9.2
I	Unskilled Manual W.	11.6	0.93	27.4	n.a.	18.3	9.0	26.5
PI	Professionals	39.6	0.82	63.0	n.a.	12.7	18.3	44.0
PI	Semi-Professionals	48.6	0.60	46.9	n.a.	16.4	29.2	70.7
PI	Skilled Service W.	33.6	1.16	41.5	n.a.	13.3	24.1	48.4
PI	Unskilled Service W.	14.2	1.58	21.6	n.a.	17.8	51.2	77.3
	Petty Bourgeoisie	n.d.	12.71	50.1	n.a.	n.d.	26.2	46.4
	Farmers	n.d.	n.a.	*43.0*	n.a.	*0.0*	*21.6*	*14.4*
	Overall average	25.9	2.27	48.1	n.a.	12	21.4	45.5
	Observations (N)	1,569	10,617	1,810	n.a.	1,194	1,810	1,810

Note: Allbus 2012 (* Allbus 2010). Individuals aged 18-64 working at the time of the interview. All estimates weighted. Italics denote less than 30 observations.

The study of the authority structure is based solely on the prevalence of *supervisory status* because of a lack of alternative measures for the hierarchical nature of the job. Except on one vertical level, incumbents in industrial classes are more likely to perform monitoring tasks if compared to employees in post-industrial positions. Only semi-professionals are on average more likely to supervise (47%) than clerks and officers (39%). The most likely explanation here is that although clerks and officers do enjoy some advantages of the service relationship, they frequently are among the rank-and-file workforce employed within large bureaucracies (Goldthorpe, 2007c). At this level, rare supervision is not so much proof of flat hierarchies, but rather indicates that clerks and officers frequently populate the bottom position within these hierarchies. Overall, the generally higher prevalence of supervising tasks within industrial classes indicates their higher inclusion within clear-cut chains of commands.

Horizontal differences with regards to work organization are indicated by the share of *temporary contracts* and the share of *part-time employment* in each class. The share of temporarily contracted post-industrial class members is in nearly all classes up to two or three times higher than among comparable industrial employees. Only unskilled manual workers are as likely as unskilled service workers to have a fixed term contract (18%). Arguably, the high share of atypically employed unskilled manual workers is due to the growing externalization of labor in post-

Fordist manufacturing regimes (Vidal, 2011). Professionals are more than twice, skilled service workers more than six times and unskilled service workers more than five times as likely to be *part-time* employed as employees in comparable industrial classes. The overall high rate of part-time employment on all vertical levels clearly indicates pronounced horizontal differences in work organization, which likely results from the transition from Fordist standard employment relations to post-industrial (public) service economy work arrangements observable in all industrialized countries (Rosenfeld & Birkelund, 1995; Kalleberg, 2006).

Finally, we also find clearly the expected segment differences with regard to the share of women within each class. In all but one exception, the share of women is higher in post-industrial than in comparable industrial class positions. Only industrial clerical workers are as likely to be women as the post-industrial semi-professional class. Aside from the clear segment differences, we find that only three classes are clearly dominated by either sex. Around 70% to 80% of clerical workers, semi-professionals and unskilled service workers are women, whereas 67% of managers, more than 90% of skilled manual and 73% of unskilled manual workers are men. Thus, the German class structure reflects to a high degree the expected gender distribution.

Horizontal differences between post-industrial and industrial occupations in the United States are even stronger than the ones just described for Germany (see Table 11). As expected, *public service employment* is between 10% and 13% higher in post-industrial classes than in comparable industrial classes. Similarly, *firm size* indicates horizontal differences, although it is important to note that both countries are not completely comparable because of different thresholds for large enterprises made necessary by the respective category definitions. Post-industrial employees are more likely to work in smaller (< 100) than in larger production units (> 500) as compared to the industrial workforce. Again, the only exceptions are professionals which are more likely to be employed in large organizations. Like in Germany, this unexpected inconsistency is driven by occupations like accountants, medical practitioners, professors and teachers, occupations which are clearly characterized, though to a varying extent, by an interpersonal work logic.

Table 11: Characteristics indicating horizontal differences, U.S.

	IPICS Class	*Work Setting*		*Authority*		*Work organization*		*Gender*
		% publ. service	$\frac{N_{small}}{N_{large}}$	% supervisors	% subordinates	% atypical*	% part-time	% women
I	Managers & Adm.	14.7	1.14	79.9	83.5	11.5	2.9	39.7
I	Clerks & Officers	16.8	1.29	30.4	92.2	12.2	12.9	68.1
I	Skilled Manual W.	13.2	1.92	39.0	90.6	12.7	7.2	24.1
I	Unskilled Manual W.	4.0	2.46	32.2	95.1	19.8	14.2	23.1
PI	Professionals	26.6	0.47	52.6	81.2	22.2	11.1	40.6
PI	Semi-Professionals	29.8	2.06	36.6	91.7	15.6	23.9	67.1
PI	Skilled Service W.	22.4	2.79	33.6	93.9	23.2	10.2	52.4
PI	Unskilled Service W.	14.5	2.83	22.8	92.9	22.4	26.7	63.4
	Petty Bourgeoisie	n.d.	52.49	31.9	16.3	64.6	30.7	53.6
	Farmers	n.d.	*1.00*	*100*	*60.0*	*16.1*	*0.0*	*0.0*
	Overall average	17.3	7.49	38.1	84.6	22	17.5	52.4
	Observations (N)	1,464	1,063	1,208	1,213	1,515	1,488	1,488

Note: GSS 2012 (* GSS 2010). Individuals aged 18-64 working at the time of the interview. All estimates weighted. Italics denote less than 30 observations. For details on atypical work arrangements refer to text and Kalleberg et al. (2000).

There is also tentative evidence for horizontal differences with regards to the authority structure measured by the prevalence of supervision and, additionally, the frequency of subordination to monitoring. *Supervisory status* is more frequently observed in industrial than in post-industrial classes, with percentage point differences ranging between 6% (skilled manual workers) and 27% (managers and administrators). Like in Germany, semi-professionals are the only exception to the rule in that they more frequently supervise (37%) than the rank-and-file office workers (30%). There is little difference, however, with regards to the *prevalence of subordination*. As a seemingly general characteristic of (capitalist) employment relations, more than 9 out of 10 employees are supervised, except among managers and administrators (84%) and professionals (81%). Subordinate positions among the petty bourgeoisie may reflect contract work in which the contract companies supervise the work of the formally self-employed worker (Kalleberg, 2000).

The work organization also differs between industrial and post-industrial work settings. Because labor law in the United States does not limit employment contracting ("employment-at-will doctrine"), fixed-term contracts are less telling about horizontal differences in employment relations as compared to Germany (Summers, 1997). As Summers states it vividly, "almost all employment is legally temporary in that it can be terminated at any time without notice and without severance pay" (Summers, 1997, p. 509). Thus, I rather concentrate here on all non-standard employment arrangements for which data is available in the GSS, i.e., contract work, on-call work, employment through a temporary agency, work for contract companies and temporary work (for definitions refer to Kalleberg, 2000, p. 257ff.). As the literature on non-standard employment suggests, these work arrangements are indeed more prevalent among post-industrial classes than comparable industrial classes, especially among skilled service workers (23% vs. 13%) and professionals (22% vs. 12%). Although both previously mentioned classes have high levels of non-standard employment, the "portfolio" of work arrangements is substantially different. Atypically employed professionals frequently work as freelancers (e.g., journalists), consultants (e.g., accountants) or self-employed (e.g., dentists). Skilled service workers, on the contrary, frequently work on-call (e.g., photographers), are rented out by temporary agencies (e.g., welfare service aides) or work for subcontractors (e.g., groundkeepers). Finally, work organization also differs between class segments according to the working time. I find little support for any major differences with regard to average working time, however. Much like in Germany, part-time employment is across the board more frequent within post-industrial (17%) than industrial classes (8%).

Finally, IPICS classes coincide with the gendered class structure again rather well. While occupational segregation is somewhat lower compared to Germany, the same pattern of gender segregation exists in both countries (Charles & Grusky, 2004). Women account for between 60% and 70% of clerical workers, semi-professionals and unskilled service workers. American men, on the contrary, account for 60% of the managers and administrators and around 75% of the manual working classes. While the class segmentation with regard to gender might be slightly lower in the U.S. as compared to Germany, the segment divide is even greater. American women are more concentrated in the post-industrial segment than German women.

Table 12: Evidence for horizontal differences

Dimension	*Indicators*	*I / PI*	*Germany*	*USA*
Work setting	Public Service	Low / High	++++	++++
	Firm Size	High / Low	++	+++
Authority structure	Supervisory Status	High / Low	+++	+++
	Subordinate Status	High / Low	n.a.	-
Work organization	Fixed-term	Low / High	+++	+++
	Part-time	Low / High	+++	++++
Gender Composition	Women	Low/High	+++	+++

Legend: Each plus indicates horizontal differences found on one of four vertical levels; minus indicates no interpretable horizontal differences.

Before the IPICS scheme's capacity to vertically differentiate various occupational groups is assessed, I summarize the argumentation and findings so far. Lacking information on work logics, I use appropriate proxies for horizontal differences in work settings, authority structures and work organization. T summarizes dimensions, indicators, hypotheses and empirical evidence for the horizontal differences. Although we have to content ourselves with less than ideal indicators, I do find clear evidence for horizontal differences in all four dimensions. In general, post-industrial classes tend to be concentrated in the public sector and are located in smaller production units – both ideal conditions for the evolution of interpersonal work logics. Only the frequency of subordinate status does not differ meaningfully between the two class segments. This is most likely because monitoring is vital in any kind of capitalistic production processes. Additionally, post-industrial classes are more likely to be characterized by post-Fordist atypical relationships. Finally, I find clear indications with regard to the gendered structure of the class system. The post-industrial classes are overwhelmingly populated by women, whereas men dominate most industrial classes. The only two exceptions are the clerical and the professional classes. While the former represents the routine office workforce, the latter is the highest class position and, thus, likely to attract men in particular (Charles & Grusky, 2004).

5.3 Vertical differences between occupations

In order to find evidence for the vertical differences within each hierarchy, I first analyze the vertical differentiation in Germany before turning to the United States (Table 13). I use three criteria for employment relations. First, supervisory status, number of supervisees and the level of autonomy indicate the average complexity of the monitoring problem within each class. In the Allbus 2006, employed respondents could choose between three statements to describe the level of work autonomy: (1) “I can freely decide how to organize my daily work”, (2) “I can decide within certain limits how to organize my daily work” and (3) “I cannot decide how my daily work is organized”. While every second interviewee (53%) chose the intermediate category, about equal shares (25% and 22%) of respondents stated that they experienced one of the two extreme types of work autonomy. Therefore, to use most of the information without emphasizing the heterogeneous intermediate category, I form the class-specific ratios of individuals stating answers 1 and 3. Consequently, a work autonomy value above one indicates that if anything, autonomy is on average rather high in this class, whereas a value below one signals low degrees of work autonomy.

As expected, I observe that in both hierarchies the prevalence of supervision increases the higher the class position. Only clerks and officers are less frequently supervisors (39%) than both skilled manual (50%) and skilled service workers (42%), a finding that again emphasizes their inferior status within the white collar context. If clerks and officers supervise, though, they command on average twice the personnel that skilled manual workers supervise. Thus, clerks and officers are seemingly a rather heterogeneous class with regards to the employment relations, resembling very much the routine non-manuals in the Goldthorpe scheme associated with mixed employment relations (Goldthorpe, 2007c, p. 117f.).

In general, the *number of supervisees* declines from higher to lower classes lending some support for the vertical differentiation among industrial classes and in the post-industrial working classes. Professionals and semi-professionals supervisors, however, monitor fewer subordinates (~17 and ~12) than skilled service workers (~ 22), which again indicates that if flat hierarchies are a characteristic for post-industrial classes, they are particularly pronounced within the top classes of the (semi-)professionals. This finding of course emphasizes the difference between authority and skill hierarchies as argued before. In the industrial hierarchy, the authority dimension and the related hierarchical monitoring structures better map vertical differences, whereas in the post-industrial expertise hierarchy asset specificity is more important. What both hierarchies share is, however, a clear rank-order in terms of work autonomy. In the highest classes, relative work autonomy is greatest (managers and administrators: 7.7 and professionals: 16.0), whereas it decreases nearly linearly and is lowest in the unskilled classes (both 0.3). Finally, the prevalence of *missing asset specificity* delimits very well the education-driven post-industrial hierarchy. The higher the post-industrial class position, the lower the share of occupations that require no formal training. In contrast, industrial classes are less clearly delimited by this lower bound measure of asset specificity.

Table 13: Characteristics indicating vertical differences, Germany

	IPICS Class	*Employment Relations*				*Temporal Variability*		*Type of Work Renumeration*	
		% supervisors*	# subordinates	work** auton.	% no skills	% fixed. term	% atyp. work	% good benefits	% pay achievement
I	Managers & Adm.	91.0	37.57	7.7	13.2	5.0	64.4	52.4	35.7
	Clerks & Officers	39.4	21.48	2.2	12.8	12.3	16.9	25.4	37.4
	Skilled Manual W.	49.7	9.60	0.5	4.9	16.3	25.4	19.3	26.5
	Unskilled Manual W.	27.4	4.98	0.3	63.6	21.1	33.7	8.5	13.0
PI	Professionals	63.0	16.77	16.0	3.3	16.6	43.8	50.4	31.1
	Semi-Professionals	46.9	12.13	1.0	6.9	17.5	46.3	23.3	23.1
	Skilled Service W.	41.5	22.07	1.1	8.2	14.2	57.1	19.9	24.2
	Unskilled Service W.	21.6	9.91	0.3	55.8	21.4	63.5	7.8	9.2
	Petty Bourgeoisie	50.1	4.22	13.0	19.5	0.0	90.7	47.0	0.9
	Farmers	43	2.08	4.7	*15.6*	*0.0*	*97.9*	*14.3*	*0.0*
	Overall average	48.1	18.28	1.1	20.0	15.4	43.6	25.5	25.1
	Observations (N)	1,810	2,475	1,534	11,199	10,190	11,235	11,235	5,003

Note: SOEPv29 2011 (* Allbus 2012; **Allbus 2006). Individuals aged 18-64 working at the time of the interview. All estimates weighted. Italics denote less than 30 observations. Different numbers of observation due to item non-response or questionnaire structure.

While there is little difference between managers and administrators on the one hand and clerks and officers (both ~13%) on the other hand, very few skilled manual workers (5%) but a large part of unskilled manual workers (64%) work in occupations which require little formalized knowledge. The low share of no asset specificity among skilled manual workers results, of course, from the German *Facharbeiter* system which still can only be entered after attending a two- to three-year long vocational training in the dual system (Haipeter et al., 2012). In total, the horizontal differences in the vertical hierarchies are drawn rather clearly. While in both hierarchies asset specificity plays an important role for delimiting the lowest class positions, entrance to a non-negligible share of top industrial class positions (~13%) does not presuppose formalized training. Whatever abilities these positions require, entrance can hardly be regulated by a formalized quasi-meritocratic process which may be a reason for the lower social distance between higher technocratic and lower working class positions (Güveli et al., 2012).

Temporal variability of work arrangements is an important indicator for vertical differences in the perspective offered by different employment relations. Since employment relations of the “labor contract” type are characterized by various non-standard work arrangements like fixed-term contracts and odd working shifts, they are likely to be more prevalent in lower than in higher classes. Accordingly, hierarchical differences with regards to the *prevalence of temporary contracts* are quite pronounced in Germany. While only 5% of managers and administrators and 16% of professionals are employed temporarily, around 21% of unskilled manual and service workers work on fixed-term contracts. With one exception, fixed-term contracts become more frequent the lower the class position is. The exception is skilled service workers, of whom comparatively few are employed temporarily. Again with one exception, *atypical work schedules*, i.e. working at least every second evening or night or working at least every second weekend, become more prevalent the lower the class position is. The one exception is managers and administrators, of whom a majority work outside normal office hours. Given that half of the managers and administrators work 50 hours or more per week, night shifts are not an indicator of odd working hours, but rather signify the freedom to organize work autonomously. Studying the different contractual arrangements of working hours, I find further proof for stratified working conditions (not displayed in the table). The lower the class is, for example, the more respondents indicate that their employer controls working time and changes work schedules from day to day, leaving little autonomy to one-in-five unskilled manual workers and more than one-in-three unskilled service workers. In contrast, more than two-thirds of managers and administrators and professionals have at least partial command of their working schedules. All in all, temporal variability points towards clear-cut vertical class differences within each segment.

Finally, work remuneration except wages, i.e. fringe benefits and performance-based payment, differ with regard to employment relations. In the German context, fringe benefits are defined as enjoying at least one out of the following three benefits: private health insurance, employee profit sharing or other irregular payments (not counting the more prevalent Christmas bonus, vacation bonus or 13th and 14th wages). Across both hierarchies, *fringe benefits* are more common the higher the class position is. Every second professional, manager and administrator, but less than one-in-ten unskilled workers enjoy them. With regards to the *prevalence of performance-based payment* schemes, I find moderate support for our vertical classification. As expected, monetary rewards for achievement occur most frequently in high-class positions and seldom in the lowest positions. However, there is little difference between managers and administrators and clerks and officers in the industrial hierarchy, and between semi-professionals and skilled service workers in the post-industrial segment. Since bureaucratic control is especially likely to be introduced in the office context, the results point towards differences between white collar office workers – whether within an organizational or an interpersonal logic – who may enjoy some type of achievement-oriented payment scheme, and both blue and pink collar workers who are more likely to be controlled by personal or technical means (Gallie et al., 1998, p. 68). Before studying economic prospects in both countries in more detail, vertical differences in the IPICS operationalization in the United States are assessed.

Like in Germany, I study employment relations in the United States by testing for vertical differences in the *prevalence of supervisory status*, the *number of supervisees*, the *work autonomy* and the importance of *asset specificity* across classes within hierarchies (Table 14). The results for the American industrial hierarchy confirm the findings for Germany. In line with the theoretic argument about different hierarchical principles in both segments, there is no simple linear relationship between supervision and vertical position in both segments. In fact, supervision is relatively frequent among both skilled working classes and infrequent among clerks and officers and the post-industrial higher classes. Ignoring the skilled workers, we do find that supervisory tasks and the number of supervisees decreases the lower the class positions is. Our measure of work autonomy for the United States differs somewhat from the German one, which renders the results not directly comparable. In the GSS 2006, respondents were confronted with the statement "I am given a lot of freedom to decide how to do my own work" and could choose from four items ranging from "very true" to "not at all true". Because the statement is arguably quite open to interviewee interpretation, half of the Americans report very high work autonomy. Without any better alternative, we collapse the negative responses and again form the class-specific ratios of the individuals with and without much work autonomy.

With the exception of clerks and officers, we find a clear-cut hierarchy in both segments. The higher the class position, the more prevalent relative work autonomy is. Similar to Germany, clerks and officers are overall less free to organize their work than skilled manuals, but still enjoy larger autonomy than unskilled manuals. Like in Germany, the lack of asset specificity relatively clearly delimits the vertical levels in both class hierarchies with the exception of clerks and officers. Their occupations less frequently (46%) require a specialized training or a vocational certificate as compared to skilled manual workers (34%). Even more pronounced than in Germany are the horizontal differences between industrial and post-industrial top classes. Only 8% of professionals, but 27% of managers and administrators, do not require any formal training to work in their current position. These findings further indicate the different importance of monitoring and asset specificity for the vertical position in both hierarchies.

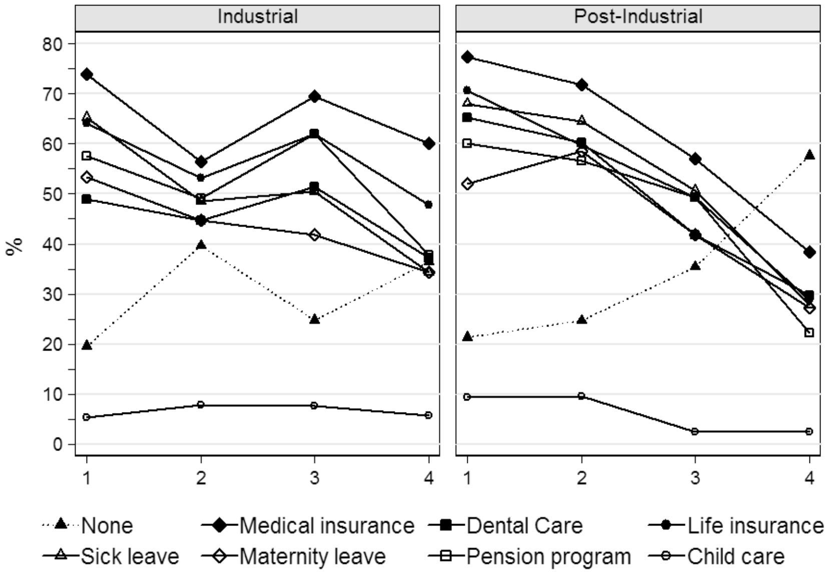
Table 14: Characteristics indicating vertical differences, U.S.

	IPICS Class	*Employment Relations*				*Temporal Variability*		*Type of Work Renumeration*	
		% supervisors	# subordinates**	work*** auton.	% no skills*	% fixed. term	% atyp. work	% good benefits	% pay achievement
I	Managers & Adm.	66.2	5.97	8.5	27.2	12.9	12.4	3.6	23.8
I	Clerks & Officers	33.7	2.44	3.0	46.4	3.0	17.7	3.1	71.6
I	Skilled Manual W.	44.5	3.98	5.0	34.1	16.5	9.8	3.5	65.2
I	Unskilled Manual W.	25.5	1.38	1.5	72.4	24.5	17.9	2.6	86.4
PI	Professionals	35.4	3.19	18.5	8.4	21.8	10.8	4.1	28.5
PI	Semi-Professionals	36.5	2.96	4.7	13.2	6.6	11.4	3.8	49.7
PI	Skilled Service W.	43.6	4.70	2.5	41.9	15.5	27.2	2.9	69.4
PI	Unskilled Service W.	20.7	0.67	1.7	57.9	12.2	31.2	1.9	87.9
	Petty Bourgeoisie	47.2	2.27	n.a.	37.0	0.0	27.8	0.9	81.1
	Farmers	*6.0*	*2.95*	n.a.	*38.9*	*0.0*	*45.3*	*1.3*	*68.3*
	Overall average	38.0	2.80	4.2	34.6	11.0	19.5	2.9	63.0
	Observations (N)	1,181	865	3,532	1,500	1,085	1,046	1,136	1,046

Note: GSS 2010 (* GSS 1998; ** GSS 1991; *** GSS 2006). Individuals aged 18-64 working at the time of the interview. All estimates weighted. Italics denote less than 30 observations.

Horizontal differences with regards to the temporal variability of work are less marked in the United States than in Germany. As stated above, all contracts are potentially temporary in the U.S. due to the "at-will" employment doctrine which precludes comparable employment protection legislation. Within the industrial hierarchy, *fixed-term contracts* become more frequent the lower the class is, that is if one ignores the extremely low level of temporary contracting among clerks and officers (3%). In the post-industrial segment, there is a reversed hierarchy observable with professionals (22%) and skilled service workers (16%) being most frequently temporarily employed, whereas unskilled service workers (12%) and semi-professionals (7%) are least likely to be on a fixed-term contract. While temporary contracts are only useful to vertically delimit industrial occupations, *atypical working schedules* vertically differentiate classes only within the post-industrial segment. Working schedules are defined atypical if night, split, irregular or rotating shifts are normal because they force employees to align their leisure time to their employer's needs.[38] Across both hierarchies, working schedules are most frequently atypical in the lowest classes. About one-third of unskilled service workers (31%) and one-fifth of unskilled manual workers and clerks and officers (18%) work odd shifts frequently. Again, skilled manual workers (10%) form an exception with frequencies of atypical schedules comparable to managers (12%) and (semi-)professionals (both ~11%).

Figure 10: Fringe benefits across IPICS classes in the U.S., 1991



Note: GSS 1991 (N= 1,136). Individuals aged 18-64 working at the time of the interview. All estimates weighted. Industrial hierarchy (left panel): (1) Managers and administrators, (2) Clerks and Officers, (3) Skilled Manual Workers, (4) Unskilled Manual Workers. Post-industrial hierarchy (right panel): (1) Professionals, (2) Semi-professionals, (3) Skilled Service Workers, (4) Unskilled Service Workers.

Finally, forms and types of non-monetary work remuneration are studied to track vertical differences. Because of a lacking universal public welfare system, work-conditioned benefits are of great importance in the United States than in Germany

[38] Due to different question wording, the definition differs from atypical schedules in Germany. In the latter case, evening and weekend work was defined as atypical. The U.S. data is more satisfactory because it provides information about the contractual working conditions.

(Alber, 2010). These *fringe benefits* include occupation-based medical insurance schemes covering, for example, hospital bills, dental care insurance, life insurance, continued payment in case of sick leave and maternity leave, occupation-based private pension schemes and cash assistance with child care. With the exception of clerks and officers, both hierarchies represent clear-cut rank orders in which higher class positions are associated with more fringe benefits. Professionals (4.1) and semi-professionals (3.8), but also managers and administrators (3.6), as well as skilled manual workers (3.5), obtain most fringe benefits on average, whereas clerks and officers (3.1), skilled service workers (2.9) and unskilled manual (2.6) and unskilled service workers (1.9) enjoy fewer benefits. While the class-specific average of available fringe benefits is informative, we can also study the average incidence of each type of benefit by class. According to Figure 10, clerks and officers rank with regards to fringe benefits in between skilled and unskilled working classes. They less frequently enjoy medical insurance, however, payment schemes for maternity and sick and pension schemes are more common among clerks and officers than among either of the unskilled working classes. More dramatic is the vertical difference between industrial and post-industrial working classes. Occupations within both skilled and unskilled service workers are always less generously endowed with fringe benefits than the manual working classes. Around 70% of skilled manual workers and 60% of unskilled manual workers, but only 58% of skilled service workers and 39% of unskilled service workers, have some form of work-conditioned medical insurance. Differences are even more pronounced regarding the absence of any benefits. While 24% and 35% of skilled and unskilled manuals have none of the work-conditioned benefits analyzed here, 34% and 54% of the respective service working classes do not enjoy any kind of fringe benefit. Arguably, these differences result from the lower degree of union coverage and more individualized contract bargaining among post-industrial working classes (Eichhorst & Marx, 2012). Similar vertical differences are observable with regards to *atypical means of payment*. Atypical payments include hourly wages[39], com-

[39] Payment in hourly wages is so widespread in the U.S. that it may seem counterintuitive to label this practice atypical. Hourly wages are frequently set in the employment contract and overtime is paid at a higher wage rate, i.e. if occupations fall under the "Fair Labor Standards Act" (FLSA), the minimum (federal) labor protection statutes applying to employment contracts, i.e. if they are not more generously treated by state law (Stone, 2004b). However, salaried payment means a guaranteed dollar amount per month, which allows employees to anticipate future prospects and calculate investments. As such, salaried payment is in fact the most

mission, paid by the job and gratuity, among others, while typical payment is defined as annual salaries. In accordance with similar results for the EGP scheme, atypical means of payment are more prevalent in lower than in higher classes (Evans, 1992). The only exceptions are clerks and officers (72%), who are similarly unlikely to be paid a fixed annual salary like skilled service workers (70%). Generally, atypical means of payment are more frequent the lower the class position, especially within the post-industrial hierarchy.

IPICS and economic security

I have found clear indications for the existing vertical differences with regards to different criteria measuring employment relations, work organization and forms of remuneration. In a next step, I focus on status stability by studying the stratification of economic prospects. Unemployment is surely one of the greatest occupation-related risks individuals face with regards to their income prospects (Gangl, 2003; Goldthorpe & McKnight, 2014). I therefore investigate age-unemployment profiles that inform about the average occurrence of unemployment at every age between 25 and 64 by class in Germany (Figure 11) and the United States (Figure 12). Both figures are based on five years unbalanced, left censored, overlapping panels of individual episodes taken from annual data from the German *Socio-economic Panel* (SOEP) and the American Panel Study of Income Dynamics (PSID), which are grouped according to class position and age in the sixth year. Both surveys are discussed in detail in Ch. 6. The reading of Figure 11 and Figure 12 is straightforward. Around age 25 in Germany, less than 5% of professionals but nearly 20% of unskilled manual workers have experienced unemployment in the last five years, i.e., since age 20.

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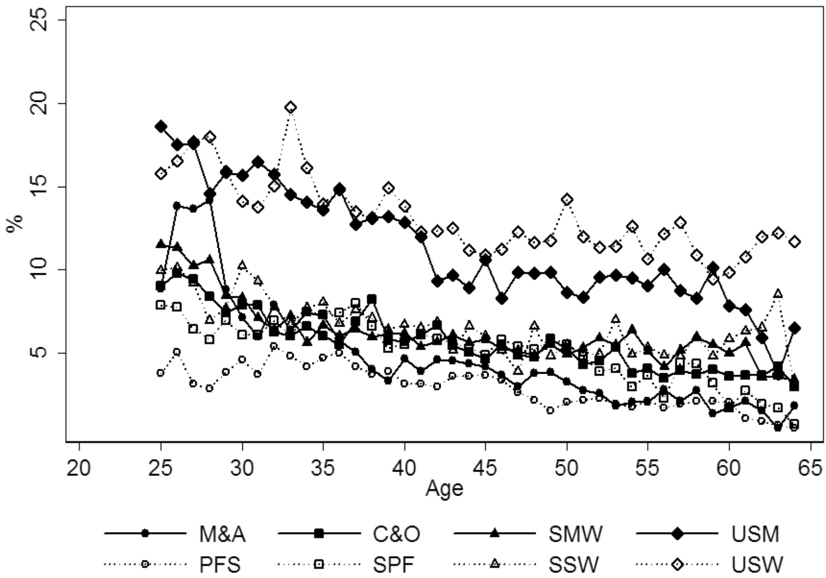
common means of payment for managers and administrators (71.4%) and professionals (69.0%), whereas hourly wages are more common among lower occupational classes. The latter may fluctuate from week to week depending e.g. on available shifts, the health status of employees or individual achievement. New forms of atypical employment, furthermore, do not automatically fall under the FLSA, but represent a new employment regulation regime which tends to increase employee inequalities (Stone, 2004a). These basic insecurities suggest assigning hourly wages, even if widespread, to the atypical forms of payments.

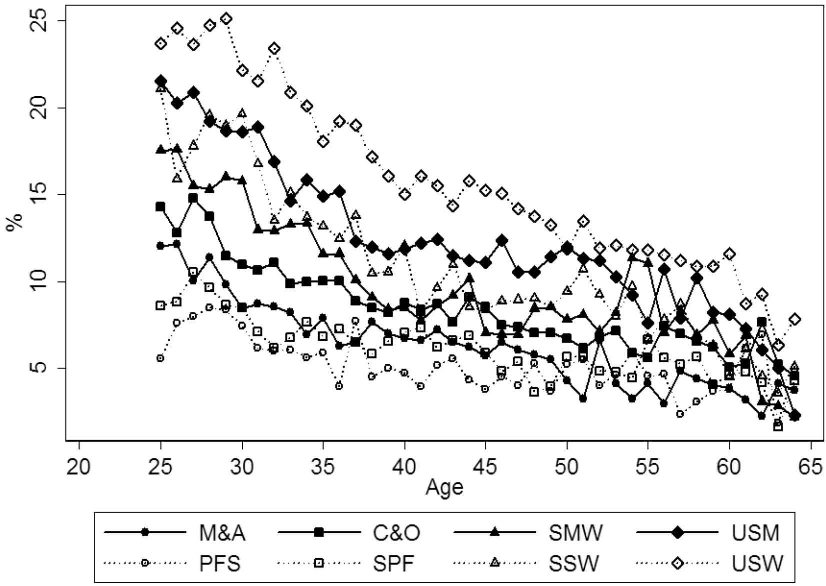
Figure 11: Unemployment-age profiles by class, Germany



Note: SOEPv29 2011 (N= 261,938 person years). Unbalanced, left censored and overlapping five-year panels pooled across years and grouped by age and class. M&A = Managers and administrators, C&O = Clerks and officers, SMW = Skilled manual workers, UMW = Unskilled manual workers, PFS = Professionals, SPF = Semi-professionals, SSW = Skilled service workers, USW = Unskilled service workers.

Figure 11 reveals that unemployment-age profiles in Germany are similar in pattern, but not the same in magnitude, across classes. There are at least three important findings observable with regards to the stratification of unemployment risks by class. First, the downward slope in all unemployment profiles show that Germans experience unemployment more frequently in early years, i.e. between 20 and 25, than in later points of their career. Second, unemployment profiles are strongly stratified by class. Professionals and managers and administrators experience unemployment most rarely, followed by the middle classes of semi-professionals, clerks and officers, skilled manual and skilled service workers. Throughout their life courses, unskilled service and manual workers experience the highest unemployment frequencies of all classes. Third, while unemployment incidence decreases linearly for nearly all classes including unskilled manual workers, falling unemployment trends level out for unskilled and skilled service workers in their mid-40s. At the other extreme, unemployment profiles are nearly flat for professionals, and from their late 30s onwards also for managers and administrators. These differences are strong indications for the stratification of unemployment risks by IPICS classes in Germany.

Figure 12: Unemployment-age profiles by class, United States



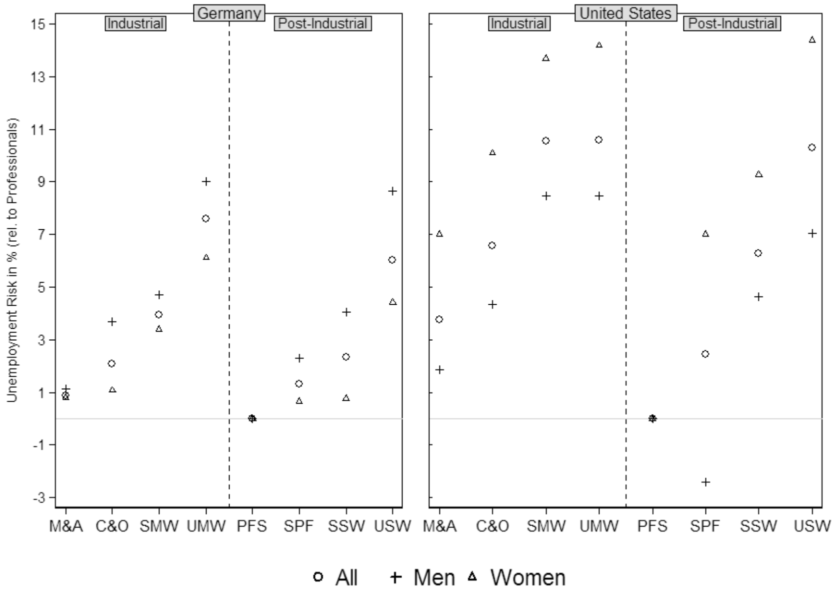
Note: PSID2011 (N= 261,022 person years). Unbalanced, left censored and overlapping five-year panels pooled across years and grouped by age. Refer to Figure 11 for the list of abbreviations.

We now turn to age-unemployment profiles in the United States which have been constructed similarly to the aforementioned for Germany, but are based on data from the PSID (Figure 12). Compared to Germany, we observe generally higher levels of early unemployment incidence, but also a stronger decrease of unemployment over the life course. Similar findings have been reported by Gangl (2003). He shows that the unemployment rate is about twice the overall average among 16 to 24 years old, but decreases to two-thirds of the average among 55 to 64-year old Americans (Gangl, 2003, p. 74). In comparison, Gangl found that the unemployment rate among young Germans is only 6% higher than average but more than thrice the average among older Germans (Gangl, 2003, p. 74). Furthermore, class differences are more pronounced in the U.S. than in Germany. Consequently, IPICS classes are well ordered vertically with regards to unemployment risks in the United States. Again, professionals experience unemployment least frequently, followed by managers and administrators, semi-professionals, clerks and officers and skilled manual workers. Among the classes with the highest unemployment incidence are skilled service workers, unskilled manual workers and, with the highest rates, unskilled service workers.

Of course the bivariate analysis of unemployment risk can only give a first impression of class differences with regards to stratification of employment prospects. As we know, unemployment risks are also stratified with regards to characteristics other than class. Everything else equal, unemployment rates vary considerably by age, gender, ethnic and racial background, family status and various other factors (Gangl, 2003). Hence, gross class differences could result at least in part from the underlying socio-demographic composition. Therefore, we run a series of logistic regression models of the risk of becoming unemployed based on IPICS class position for 18 to 64 years old for both countries. We use data from the 2011 SOEP and PSID waves for Germany and the United States. Within each country, models are run for each gender separately and for the full sample. Each model controls for age and ethnic (Germany) or racial (U.S.) background. One may consider 2011 a conservative choice because unemployment rates in the U.S. were generally high following the great recession from 2007 to 2009. American official unemployment rates nearly doubled from 4.6% in 2007 to 8.9% in 2011 (BLS, 2014).[40]

[40] Although the unemployment rate declined over the same period in Germany from 9.2% in 2007 to 7.2% in 2011, there is no reason to expect that this affected classes in significantly different ways (BfA, 2014).

Figure 13: Unemployment risk in Germany and the U.S. in 2011.



Note: Average marginal effects from a logistic regression on the risk of becoming unemployed. Refer to text for information on samples and models. Based on American data from the PSID2011 (N=9,425) and German data from the SOEPv29 2011 (N=11,343). Refer to Figure 11 for the list of abbreviations.

For both countries, Figure 13 shows the average marginal effects of becoming unemployed for each class for men, women and both in 2011. Each graph is further split in two panels to help differentiate industrial and post-industrial classes more easily and the common reference class of professionals is fixed at zero for identification purposes. The marginal effects presented are adjusted for age and race or ethnic background and allow for the direct comparison between both countries. There are several noteworthy findings. First, it is shown that IPICS classes in both countries predict within each segment vertically ordered unemployment risks, independently of gender, age and ethnic or racial composition. Second, we observe that relative risks are generally higher in the United States than in Germany, which is consistent with the results reported by Gangl (2003). The full sample of men and women (circles) shows that the unemployment risks increase linearly from high to low classes in both segments in each country. Compared to professionals, unskilled manual and service workers have an 11% higher chance in the United States, and in Germany still 4% and 6% higher chances, of becoming unemployed.

However, there is no significant difference between unemployment risks of managers and administrators (U.S.: 4%; Germany: 1%) and professionals in either country. Similarly, semi-professionals (2%; 1%) experience similarly low unemployment risks compared to professionals. Finally, unskilled and skilled manual workers face similar unemployment risks in the United States, but not in Germany. This could be a period effect.[41] As pointed out before, unemployment in the United States in 2011 was still high due to the great recession which resulted in severe job losses, especially in construction and manufacturing, both industries in which many skilled manual workers are employed (Goodman & Mance, 2011).

Regarding gender differences, I observe that men (plus) resemble the full sample results in both countries but with one exception: American male clerks and officers (4%) do not differ significantly from professionals with regards to their unemployment risks. This resembles well documented gender differences among routine non-manual workers in the EGP scheme (Erikson & Goldthorpe, 1992, p. 44). Unemployment risks for women (triangle) in the U.S. are even more strongly stratified by class than for men. Female semi-professionals, for example, have a 7% (significantly) higher unemployment risk than professionals. In Germany, on the other hand, unemployment risks among women are less stratified with regards to class. While unemployment is significantly higher among skilled and unskilled manual (3% and 6%) and unskilled service workers (4%), unemployment risks vary little between professionals and the other four classes. The overall lower unemployment risk of women as compared to men, and their lower degree of class stratification, is partially due to the German conservative welfare regime (Esping-Andersen, 1990, 1999). Women in Germany are more likely in case of unemployment to leave the labor market completely – temporarily or for good – and settle for providing family care work, i.e. of course, only if the family can afford it (Drobnič et al., 1999; Matysiak & Steinmetz, 2008). Once we run the same models but include the economically inactive as outcome, we find (1) that relative risks of women outweigh those for men, also in Germany, and (2) that class differences are significantly higher for all classes except for female managers and administrators.

[41] This conclusion is further strengthened by the fact that we do observe clear differences between unskilled and skilled manual workers with regards to their (relative) unemployment risks if we pool several survey waves of the PSID covering the years 2001 to 2011.

The IPICS scheme and vertical differentiation

Table 15 summarizes the findings from the analysis of various dimensions indicating vertical differences within the class scheme. By and large, I find that the IPICS classes reflect vertical differences between occupations in the employed dimensions in both countries rather well. Most importantly, the findings support the assumption that both hierarchies are stratified with regard to different properties. While the skill specificity is particularly important for the post-industrial vertical order, supervision indicates the hierarchical position better in the industrial segment. That said, there is only seldom a linear relation between class position and the respective dimensions within each hierarchy, mostly because clerks and officers rank below skilled manual workers. However, the prevalence and pattern of fringe benefits underline that clerks and officers clearly rank higher than the unskilled working classes. Finally, the analysis of unemployment incidences and risks further attest that the IPICS operationalization successfully reproduces the vertical stratification of career prospects, which is of great importance for parental investment strategies.

Table 15: Evidence for vertical class differences

Dimension	*Indicators*	*HC / LC*	*Germany*	*USA*
Employment Relations	Supervisory Status	High / Low	++	+
	Number of Subordinates	High / Low	++	+
	Work Autonomy	High / Low	++	++
	No Asset Specificity	Low / High	++	++
Temporal Variability	Temporary Contracts	Low / High	+	~
	Atypical Work Schedule	Low / High	++	+
Work Remuneration	Fringe Benefits	High / Low	++	++
	Atypical Payment	Low / High	++	++
Status Stability	Unemployment Risk	High / Low	++	++

Legend: HC= high classes, low classes, ++ = strong vertical differences; + = some vertical differences; ~ = unclear evidence for vertical difference.

In the preceding chapter, the IPICS scheme's validity was assessed in order to evaluate whether the IPICS classes differ vertically and horizontally along the lines derived from its theoretical foundation. In the following chapter, the data base of this work will be presented, and the operationalization of the IPICS classes discussed.

6 Datasets, Operationalization and conceptual issues

In the following analyses, we use data from several surveys in each country. The criteria for inclusion in this study are nationally representative sampling designs and detailed information on respondents and their parents' occupations. Furthermore, surveys were selected as to cover information from the last 40 or more years in order to obtain data for as many birth cohorts as possible. A similarly rich data basis has, to my best knowledge, only been used in mobility studies by Pollack and co-authors (Müller & Pollak, 2004; Breen et al., 2009; Pollak, 2009; Breen et al., 2010; Pollak, 2010) for Germany and the current author in an earlier work for the United States (Pfeffer & Hertel, 2015).

6.1 Employed datasets for the analysis of social mobility

This work employs data from six surveys in Germany and four surveys in the United States. German surveys include: the Allgemeine Bevölkerungsumfrage der Sozialwissenschaften; Zentrum für Umfragen, Methoden und Analysen Bevölkerungsumfrage der Sozialwissenschaften; Wohlfahrtssurvey; the Politik in der BRD; the Sozio-ökonomisches Panel; and data from the German Life History Study. American data includes: the General Social Survey; the Survey of Income and Program Participation; the 1973 Occupational Changes in a Generation; and data from the Panel Study of Income Dynamics. In the following, each of the employed surveys are introduced briefly.

The *Allgemeine Bevölkerungsumfrage der Sozialwissenschaften* (Allbus) is a nationally representative cross-sectional survey focusing on attitudes and behavior of Germans since 1980 (Koch & Wasmer, 2004; GESIS, 2012). In the 1980s, the universe included all West Germans eligible to vote. Since 1991, the universe comprises all Germans and German-speaking foreigners. Sample sizes vary by year between 3,000 and 3,500 interviewees. Until 1992 and in 1998, a stratified random sample from the population was drawn based on electoral districts, households and individuals in households. In the other years, administrative register data was used to randomly draw interviewees within municipalities. The Allbus oversamples East Germans to allow for separate analysis, and distributes weights to

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account for oversampling in case of analysis aiming at the whole German population. The personal interviews are administered biannually (except 1991), mostly in the spring of each survey year. Questions in each survey cover respondents' socio-demographic information, whereas topics covering attitudes and behavior are repeatedly asked in various years. The Allbus is the German counterpart of the General Social Survey study, with which it shares several questions and collects German data for the International Social Survey Program (ISSP).

The predecessor of the Allbus was the *German social survey* (Zumabus) collected by the Center for Surveys, Methods and Analyses at the University of Mannheim (ZUMA) (ZUMA, 1982). The Zumabus consists of nine surveys administered between 1977 and 1985. Of these nine surveys, Zumabus 1 to 6, i.e. surveys conducted in 1976, 1977, 1979, 1980, 1982, are employed in the following analyses because they are the only ones that contain information on parents' occupations. The universe is all West Germans aged 18 and older living in private households. Consequently, foreign residents are excluded especially if they are not German speaking. Nationally representative samples are drawn based on a stratified random sample comparable to the design in the early Allbus. Sample sizes are around 2,000 respondents in each survey. In almost all Zumabus surveys, respondents were personally interviewed during spring and early summer. While each survey had different thematic focuses, e.g., attitudes towards environmental protection or family planning, the chosen Zumabus surveys contain socio-demographic data which is used in the following analyses.

Data from three other surveys, which also include the ZUMA standard socio-demographic information, are included. Two pre-election studies, *Politik in der Bundesrepublik Deutschland* (PiBRD), administered in 1978 and 1980 and collecting information on political attitudes, are employed in the following analyses (Bürklin et al., 1982; Wildenmann, 1982; Bürklin, 1985). Both studies' universes consists of all West German citizens aged 18 and older living in private households. A stratified random sample design was chosen to select around 2,000 respondents for each survey. Detailed socio-demographic information of respondents allow for the assignment of social origins and individual class positions to respondents. Additionally, the *Wohlfahrtssurvey* (WFS) administered in 1978 is included in the following analysis (Brachtl et al., 1981). It covered the same universe and employed a similar sampling strategy as the two studies mentioned before. In addition to social class indicators and social background information, the WFS collected information on the living situation and quality of life of respondents.

The *Socio-Economic Panel* (SOEP) is a household panel study that as of 2014 has been running for more than 29 years (Wagner et al., 2007; Schupp et al., 2012).

Starting with a nationally representative sample in 1984 of nearly 12,000 respondents in 6,000 households, data collection has continued annually. In contrast to its sister study, the American PSID, the SOEP draws on personal interviews with all adult household members aged 17 and older, and indiscriminately follow original and non-original sample members. In order to counter attrition, i.e. individuals or families that drop out of the panel, and in order to include specific subpopulations, the SOEP was enhanced by several refreshment samples, including samples of East Germans (1990), foreigners (1994) and high-income earners (2002). Currently, the SOEP interviews more than 18,000 individuals in nearly 11,000 households. In order to account for the oversampling of specific subpopulations, the SOEP group provides weights that allow for the representative analysis of the whole German population. We use SOEP data from the last panel wave, i.e. 2012, for the analysis of social mobility in Germany.

The *German Life History Study* (GLHS) comprises 10 surveys conducted between 1981 and 2005 at various research institutes (Mayer, 2015 and the other papers in the special issue of the European Sociological Review 31 (2)). The GLHS is a detailed retrospective survey of the life histories of 11,400 respondents from eight birth cohorts of West and East Germans. The birth cohorts covered comprise Germans born between 1919-1921 (interviewed between 1985 and 1988), 1929-1931 (1981-1983), 1939-1941 (1981-1983), 1949-1951 (1981-1983), 1954-1956 (1989), 1959-1961 (1989), 1964 (1998-1999) and 1971 (2004-2005). After 1989, East Germans of five of these cohorts were additionally interviewed. The GLHS cohorts are nationally representative for the respective cohorts in the German population. In the following, I will use cross-sectional data from all GHLS surveys and use the class position at the time of the interview or, in case of the earliest cohort which was interviewed around age 65, the longest held class position.

The main American dataset used in the analyses is the *General Social Survey* (GSS) covering the years from 1972 until 2012 (Smith et al., 2013a). The GSS is a nationally representative cross-sectional survey that was conducted annually from 1972 until 1993, with the exception of 1979 and 1981. From 1994 onwards, the GSS was administered biannually until 2012. The universe includes all English- and (since 2006) Spanish-speaking adults 18 years of age or older, living in the United States. The number of personally interviewed respondents varies from around 1,500 per survey until the early 1990s, and around 3,000 and more interviewees in the following even-numbered years. From 2008 onwards, the GSS changed from cross-sectional design to a three-wave rotating panel design. Since then, every round of the GSS consists of a new cross-sectional sample as well as a sample of re-interviewed panel respondents. Over the years, the sampling design changed substantively (Smith et al., 2013b: App. A). In the early 1970s, the GSS used a multi-stage probability sample with block quotas, but shifted in later years to a full probability sample of households in the United States. Additionally, African-American respondents were oversampled in 1982 and 1987. To account for changes in the sample scheme and oversampling, weights are provided by the GSS.

Supplementing the March Current Population Survey, the 1973 *Occupational Changes in a Generation Survey* (OCG-II) was a replicate study of Blau and Duncan's famous 1962 survey (Blau & Duncan, 1967; Blau et al., 1994). The OCG-II is a nationally representative cross-sectional survey covering the universe of males aged 20 to 65 in the civilian, non-institutional population of the United States. The sample was administered using a multi-stage probability sample that oversampled people of color and Hispanic Americans. In August and September 1973, more than 37,000 individuals participated in the OCG-II by mail or, in case of non-response, by a personal follow-up interview (Featherman & Hauser, 1975). To account for the oversampling, population weights are provided and a design weight is suggested (Featherman & Hauser, 1978: App. B).

Several waves from the *Survey of Income and Program Participation* (SIPP) form the third American dataset employed in this study (Census, 1990a, 1991a, 1992). The SIPP is a household survey designed as a continuous series of nationally representative panels administered from 1984 onwards. Each panel contacted between 14,000 and 52,000 households with 30,000 to 60,000 individuals and continued for up to five years. Households are sampled using a multi-stage-stratified sample design with counties as primary sampling units. Questions cover core issues of labor force participation, income and program participation and topical modules differing by year. In the following analyses, we employ data from the second wave of three panels administered from June to September in 1986, 1987 and 1988, containing information on the social background of all adult individuals within sampled households (Census, 1989, 1990b, 1991b). The respective SIPP panels' universe consists of adult individuals (ages 15 and older) living in households in the civilian non-institutionalized American population. Individuals in each sampled household were re-interviewed every fourth month following a rotation scheme, such that one-fourth of the sampled respondents is personally interviewed in each month. Weights account for differences in the sampling probability and the non-response pattern in each wave, and adjust for socio-demographic differences relative to the Current Population Survey.

Finally, data from the *Panel Study of Income Dynamics* (PSID) is used in the following analyses (McGonagle et al., 2012; Brown et al., 2014). Conceived in 1968, the PSID is the longest-running household panel study in the world. Based on a nationally representative sample consisting of 1,800 households from the Survey of Economic Opportunity and an additional sample of nearly 3,000 non-poor households, the PSID follow originally sampled families and their offspring until today. In 2011, the PSID sample consisted of more than 8,900 families with more than 23,000 individuals. Until 1997, the PSID was administered annually, but changed thereafter to a biannual interviewing scheme. Although several families were dropped from the panel in 1997 due to severe budget constraints, a fresh subsample of post-1968 immigrant families was included to maintain national representativeness. Analyses of the influence of panel attrition on intergenerational transmission of economic status within the PSID attest to a high representativeness in spite of panel dropouts (Fitzgerald, 2011). In contrast to the SIPP or SOEP, the PSID interviews only one adult respondent per household and obtains proxy information on other household members. Included in the data distribution are individual weights to account for panel attrition and sampling probability.

Differences between surveys

As impressive as this data basis is, there are several problems with studying all surveys together. While the laborious harmonization allows to employ as many datasets as possible, some problems persist with regard to different concept definitions. The largest bias may result from different measurements of occupations of respondents, which is why the next section will study this issue in more detail. However, there are also problems with regard to class origins. While some surveys explicitly collect fathers' information, others ask for the male individual who actually parented the interviewee. Similarly ambiguous are surveys with regard to the point in time of the social origins actually referred to. In some surveys, interviewees are asked to report fathers' occupational information at age 14, whereas in other surveys information on parental occupation during adolescence is collected. Although noteworthy, any biases due to those differences are likely to be small and, in fact, are arguably more or less random.

A more important problem, however, arises from the fact that neither the PSID nor the SIPP collected information on self-employment of fathers. Consequently, we face the decision to either forgo the respective datasets or assign class origins independent of self-employment information. While the first decision would result in a severe cut of sample sizes and, thus, analysis power, the latter would group social positions which differ substantially with regard to both the work logic and the available resources (see Table A. 1 in the appendix for differences in resources between employee classes and self-employed). Therefore, I decided to impute the self-employment status of fathers in the two surveys based on the observations from the other surveys. For this purpose, I employ a chained regression imputation approach including all the variables that are later included in the models. Imputations are run separately for men and women.

Finally, none of the samples is a simple random sample, i.e. different individuals have similar probabilities to be interviewed. Especially the oversampling of people of color and Hispanics or foreigners and East Germans may unduly affect the results of the final analyses. Unfortunately, the original sampling weights provided by survey producers are of little use because they aim at reproducing the actual universe in the survey year. The synthetic birth cohorts that are analyzed, however, are differentially distributed across surveys and periods so that original weights can hardly account for the different sampling probabilities of our birth cohorts in each survey. Comparing weighted and non-weighted relative mobility trends based on each survey with those produced by the GSS and the Allbus, the two longest running surveys in each country, reveals that survey weights actually problematically bias the social fluidity estimates for various surveys. Hence, I keep complex matters simple by refraining from using weights in order to minimize their potentially deteriorating effect. Appendix Ch. 15.2 describes a basic idea for calculating a frequency weight based to reproduce the racial and ethnic composition in the sample that can be found in a similarly created (synthetic) universe for the United States based on the CPS March. Applying this weight did not force me to alter any of the substantial conclusions of the following analyses which is why I refrained from doing so. In a strict sense, consequently, results produced on basis of the combined datasets will be representative solely for the samples analyzed, but not for the whole population. Nevertheless, results can be judged in light of previous studies covering similar cohorts or periods, and evaluated in the plausibility of the interpretation of the findings. The more important issue, in my mind, is to what extent the class assignment procedure influences the following analysis.

6.2 Occupational classifications and IPICS

Surveys normally collect varying amounts of information on current employment of respondents. Occupations are then assigned to an occupational coding scheme for the data release. These taxonomies are used by coders to assign respondents to – usually three digit – occupational unit groups based on an occupation's title as well as the tasks, activities and duties it entails. The three digit codes are further grouped into two- and one-digit minor and major groups based on varying criteria, like the similarity of tasks, skill levels or occupational environments, depending on the respective coding scheme applied (see Table 16). The operationalization of the IPICS scheme rests on the assignment of occupational codes from several German and American occupational classifications to the respective class position. Instead of translating the American codes into some general occupational taxonomy, I assigned classes on the basis of national (variants of) coding schemes to account for the different institutional structure of labor markets and taxonomies (Lambert et al., 2008). While this strategy allowed for the use of as many datasets for the analysis as possible, it comes with the caveat that classes are assigned based on different occupational taxonomies. The German occupational data was coded either in the International Standard Classification of Occupations (ISCO) ISCO-68 or its revision ISCO-88. The American data was coded in different derivations of the census occupational classification (COC) COC1970, COC1980, COC2000 and COC2010. Because taxonomies vary in detail, the operationalization was performed with great care in order to minimize the bias introduced by relying on occupational data from different taxonomies.

Table 16: Occupational coding schemes used for class assignment

Country	*Dataset*+	*Year*[42]	*Occupational Coding Scheme*	*# of Occup. Groups*		
				Major	*Minor*	*Unit*
Germany	Allbus	1980-2010	ISCO-68 (1980-1991), ISCO-88 (1992-2010)	8 10	83 116	284 390
	SOEP	1984-2012	ISCO-88	10	116	390
	ZUMABUS 1-6	1976-1982	ISCO-68	8	83	284
	Politik in der BRD	1978,1980	ISCO-68	8	83	284
	Wohlfahrtssurvey	1978	ISCO-68	8	83	284
	GLHS	1981-2005	ISCO-68	8	83	284
USA	GSS	1972-2012	COC1970 (1972-1988), COC1980 (1989-2010) COC2010 (2012-2014)	13 13 23	37* 59* 97*	441 503 461
	PSID	1968-2011	COC1970 (1968-2003), COC2000 (2003-2012)	13 23	37* 96*	441 449
	SIPP	1986-1988	COC1980	13	59*	503
	OCGII	1973	COC1970	13	37*	441

Note: Major groups (one digit), minor groups (two digits) and unit groups (three digits). * Minor groups have no corresponding number of digits in the COCs. Minor groups represent here – depending on the respective scheme - sub-headings, job families, summary or sub-groups, which differentiate the consecutively numbered unit groups according to task similarity. + For more information on the datasets employed, refer to Ch. 6.

[42] The PSID, Allbus and GSS switch between annual and biannual data collection.

The operationalization has been performed in three steps. First, each occupational unit code of the ISCO-88, the COC1970 and COC2000 classifications was assigned to an IPICS class according to the above outlined theoretical considerations (Ch. 4) based on occupational dictionaries which describe typical tasks, work environments, required skills and average educational credentials within occupations. The detailed online resources used for the assignment were the DOT (National Academy of Sciences, 1981) and O*NET (US Department of Labor, 2013) for the U.S. census occupational codes 1970 and 2000, and the BERUFENET (Bundesagentur für Arbeit, 2013) as well as the Berufe-Lexikon (Leube, 2013) for the German version of the ISCO-88. Occupations from the datasets and descriptions from the occupational dictionaries were matched through their respective titles. In a second step, official crosswalks provided by the U.S. Census Bureau were employed to derive class assignments for the census occupational classifications of 1980, 1990 and 2010 (US Census Bureau, 1972, 1989, 1994, 2003, 2011).[43] For Germany, a well-documented crosswalk between ISCO-68 and ISCO-88 was used to assign the classes to the ISCO-68 coded data (Geis, 2011). In a final step, the class assignments were checked manually for consistency, relying again on the detailed descriptions of occupations.

Following the theoretical reasoning above, several other class schemes were used to assist when the assignment of one class seemed to be ambiguous. If there was concern about a concrete horizontal position, information from the original Esping-Andersen classification (ESP) protocol was used (Assimakopoulou et al., 1992). Because of different coding schemes and a different theoretical logic behind the IPICS and the ESP classes, the original protocol was used rather as an expert opinion than as a definite instruction against which we compared our own choice based on the available occupational information. If there was doubt about the vertical position of an occupation, or IPICS and ESP assignment differed, we referred to the EGP classification provided by Morgan and McKerrow for COC1980 (Morgan & McKerrow, 2004) for the U.S. data and the occupational classification scheme introduced by Blossfeld (Blossfeld, 1987; Schimpl-Neimanns, 2003) for the German data, which is similar to the ESP classes[44]. Finally, the IPICS classes were compared with both EGP and the Blossfeld classes to find potential misclassifications.

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[43] I gratefully acknowledge the sedulous help of my student assistant, Adrian Kussin, with this tedious work.

[44] Blossfeld constructs his classes based on occupations' "average general and vocational training requirements as well as their occupational activities" and distinguishes horizontally between occupational activities in production, service and administration (Blossfeld, 1987, p. 98). Both dimensions for assignment, skill specificity and sector of activity, are related but not identical with the underlying dimensions used to construct IPICS.

It is well known that the analysis of fine-grained occupational data, e.g., the three-digit COC1970 codes, is problematic because of bias introduced by measurement error (Kambourov & Manovskii, 2008; Perales, 2014). Although this type of error is rather unlikely to occur within a more aggregated class perspective, the different occupational schemes used are a potential source of measurement error which may seriously affect the study of cross-national differences and trend analysis (Erikson & Goldthorpe, 1992). This error could be substantial once one understands the difference in detail and coverage between earlier and later schemes, e.g., ISCO-68 comprises 284 occupational unit codes whereas ISCO-88 contains with 390 unit codes nearly 30% more (see Table 16). The variety of taxonomies used could also bias class assignment because their rationale differs. While ISCO-88 assigns occupations according to the skill level and skill specialization, ISCO-68 groups occupations according to the similarity of tasks (ILO, 1969, 1990; Bergman & Joye, 2005). These differences in the rationale, however, affect mostly the major groups (Geis & Hoffmeyer-Zlotnik, 2001). The unit groups upon which the current class scheme is based are presumably comparable across the different coding schemes (ILO, 1990). Like ISCO-68, the various American census occupational classifications classify occupations according to the most important tasks and duties based from 1980 onwards on the Standard Occupational Classification (SOC). Each of the four employed census occupational classifications from 1970, 1980, 2000 and 2010 were revised to account for new and growing occupations, and to provide more homogeneous categories compared to their predecessor (Priebe et al., 1972; Vines & Priebe, 1989; Scopp, 2003; Bureau, 2011).

Though the coding procedure was fairly thorough, the different occupational taxonomies might still have introduced bias because occupations may have been assigned to different unit groups at different times.[45] While this difference may result from the ongoing economic differentiation and division of labor introducing new occupations through technological change or specialization, it is also likely that more modern classifications try to map the actual occupational landscape more accurately than in earlier times, where cleavages were more likely to run in between larger socio-economic groups than in between smaller occupational groups (Weeden & Grusky, 2005b). Fortunately, it is possible to test, at least for two of the datasets that are used herein, whether the association between parental and offspring class positions is unduly affected by the different coding schemes employed. Both the German Allbus and the American GSS have double-coded occupational information for several years. Between 1988 and 2008, occupational data has been coded in both ISCO-68 and ISCO-88 in the Allbus data. Similarly, the GSS distributes occupational data classified according to both COC1970 and

[45] Fortunately, occupations of parents and their offspring are always coded in the same schemes.

COC1980 for three waves between 1988 and 1990. Although it is fortunate to have these data, we lack double coded information for comparing the other employed U.S. occupational classifications. However, it is important to note that the most fundamental changes happened between the 1970 and 1980 census occupational classifications (Vines & Priebe, 1989). In fact, these changes were substantial enough to discourage Morgan and Tang from reconciling both classifications for their operationalization of the EGP scheme (Morgan & Tang, 2007, esp. Appendix B).

Equipped with the data from double coded years, I can test to what extent the classification scheme is associated with origins, destinations or with the interaction of the latter two, i.e. social fluidity, which is of prime interest in the following detailed analyses. This test can be performed straightforwardly by means of log linear analysis. For this purpose, the data is arranged in such a way that I obtain separately for each country and gender a three-way $8 \times 8 \times 2$ contingency table of employee origin class by employee destination class by classification scheme. There are at least two designs of how the original survey data can be used to study the taxonomy's influence. First, the individual observations can be artificially duplicated in order to represent not individuals but the outcome of independent classification procedures. Second, the individuals are randomly selected so that each individual enters the sample only once with either of the two possible class assignments. Table 17 presents model statistics and attributes employing the first analysis strategy[46]. To judge model fit, we employ the deviance measure G^2, the G^2 log-likelihood test statistic (*P*-value) and the index of dissimilarity (Δ). Model comparisons (last two columns in Table 17) are performed using the log-likelihood ratio and the BIC test statistic (for further information on tests and log-linear models refer to Ch.15.4). The test design is structured as follows. First, a model of perfect mobility (PM) is fitted simply with the three main effects for (O)rigin, (D)estination and (S)chema. Second, a model is fitted that additionally includes the OD association, but assumes that there is no interaction between scheme and any other one-way or two-way effect. Third, I fit a model that assumes that interactions between scheme and one-way effects for O and D are needed in addition to the OD association. Fourth, a model is fitted that constrains the association of the coding schemes to be the same for both origin and destination class distribution. This model is not nested in either of the other models, hence its increase in fit cannot be evaluated using the log-likelihood ratio statistic (von Eye & Mun, 2013: Ch. 9).

[46] The second strategy does not lead to any other conclusions. Results can be obtained by the author upon request. I am grateful to Ruud Luijkx for pointing out the potentially problematic dependency between two coding instances of the same individual.

Table 17: Coding schemes and the intergenerational association[47]

		Model	G^2	*df*	*P-value*	*Δ*	*BIC*	*vs. 1*	*vs. 2*
Germany	*Men*	S,O,D	1,418.1	112	0.000	0.168	419.8		
		S,OD	51.5	63	0.850	0.033	-510.1	0.000	
		SO,SD,OD	8.9	49	1.000	0.012	-427.9	0.000	0.000
		SO=SD,OD	10.9	56	1.000	0.013	-488.3	n.a.	n.a.
	Wom	S,O,D	923.3	112	0.000	0.155	-37.7		
		S,OD	57.6	63	0.670	0.036	-482.9	0.000	
		SO,SD,OD	19.3	49	1.000	0.019	-401.1	0.000	0.000
		SO=SD,OD	33.5	56	0.993	0.028	-447.0	n.a.	n.a.
United States	*Men*	S,O,D	357.7	112	0.000	0.188	-468.5		
		S,OD	83.4	63	0.043	0.081	-381.3	0.000	
		SO,SD,OD	32.1	49	0.971	0.041	-329.3	0.000	0.000
		SO=SD,OD	33.9	56	0.991	0.043	-379.2		
	Wom	S,O,D	272.1	112	0.000	0.142	-566.8		
		S,OD	78.0	63	0.097	0.069	-393.9	0.000	
		SO,SD,OD	34.2	49	0.946	0.042	-332.8	0.000	0.000
		SO=SD,OD	39.9	56	0.949	0.047	-379.5	n.a.	n.a.

Note: Allbus 1988-2008 (Germany): N=7,432 men and 5,324 women; GSS 1988-1990 (USA): N=1,598 men and 1,790 women. Full-time employed individuals aged 30 to 64 with valid information on fathers' class position. S = scheme, O = origin and D = destination.

The results presented in Table 17 grant some confidence in the inter-classification reliability of the IPICS scheme. Judging by the results of the statistical tests, the change between the classification schemes did not unduly affect the association between origin and destination class position. In other words, social fluidity is not affected by the change of taxonomies. In all but one group, American men, the second model assuming no association between either origin or destination distribution and the coding scheme provides a satisfactory explanation of the data (*P*-values > 0.05). However, model comparison between the third and the second model also shows that model fit increases significantly for all groups but American women if the two-way association between both origin and destination positions and scheme is allowed for (vs. 2 < 0.05). This increase in model fit, we may note from the higher BIC values of the third models compared to the second models, is hardly warranted by the loss in parsimony. Even though we can rule out that the origin-destination association is affected by the choice of the scheme, the third models suggest that there is some association between schemes and the origin and

[47] Pooled samples consist of duplicated individual observations, each representing independent instances of the coding procedure. Similar results are produced based on a sample of randomly selected individuals (1,694 Americans and 3,388 Germans).

destination distributions, respectively. While we code individuals' origin and destination classes always with the same scheme, it may be reassuring to note that the association between both origin and destination and scheme are mostly the same as indicated by each fourth model. Saving seven parameters, model fit hardly differs between models three and four. While these results are comforting with regards to errors introduced by different occupational coding schemes, there remains the question whether the differential assignment of self-employed is erroneous.

6.3 Sample and cohort design

The analysis of social mobility is based on a composite dataset constructed on the basis of the earlier reviews different datasets. In order to reduce the bias introduced by different occupational classification schemes, laborious harmonization work has been performed. Sensitivity analysis have shown that the coding procedure did not bias the social mobility estimates which are used in the following. In effect, the mobility analyses performed further below are based on the most comprehensive data base ever used for mobility studies in both countries. A further sensitivity test also reassures about the treatment of self-employed in the following work. Before, the study of intergenerational mobility can commence, I will empirically describe the classes to emphasize the relation between class membership and life chances.

Before the analysis of social mobility in Germany and the United States can begin, several design issues have to be tackled. All analyses are performed separately for men and women to account for both the gender differences in mobility opportunities and the difficulties originating with the conservative choice of father's class as the sole background criteria. While it would have been desirable to follow Beller's (2009) lead and use both parents as equal sources for assigning a social background, this would have drastically reduced the available number of observations and limited the power of the following analyses. In surveys from the 1970s, mother's occupation was usually not recorded and replacing mother's class with mother's education – which is not available in various surveys – would result in mixing the effect that education and class independently have on the attainment process. Therefore, I decided reluctantly to employ the conventionalist approach and employ father's class as sole origin proxy. At least this approach has the (conservative) advantage that the results are comparable to most studies of intergenerational mobility. A simple analysis that tries to assess some of the bias introduced by employing the conventionalist practice is performed in the appendix in Ch. 15.3. Results are mostly comforting with regard to economic assets but severely limited because they ignore mother's influence through non-monetary channels, like socialization.

Another important issue is the way in which time enters the analysis. There are two ways in which inter-temporal change in social mobility is generally studied. For a long time, researchers usually employed a period design in which social mobility is compared across two or more periods, usually decades (Featherman & Hauser, 1978; Hout, 1984a, 1988; Jonsson & Mills, 1993; Breen, 2004a). Another approach is to study social mobility across birth cohorts to stress that conditions which might affect trends in intergenerational class mobility are basically phenomena related to cohort replacement (Erikson & Goldthorpe, 1992; Müller & Pollak, 2004; Mayer & Aisenbrey, 2007; Pfeffer & Hertel, 2015). A period perspective is useful if we aim at tracing the influence of a phenomenon that affected social mobility of everyone from a certain point in time onwards, e.g., changes in the economic or political system (Gerber & Hout, 2004). However, there are good arguments for expecting that period trends in social mobility are confounded with cohort trends and, in fact, are largely cohort-driven (Breen & Jonsson, 2007; Breen & Luijkx, 2007). Analyzing the increase of social mobility chances in Sweden, Breen and Jonsson (2007) conclude that reforms of the Swedish educational system, i.e. period phenomena, resulted in a decreasing association between class origins and educational attainment, which in tandem with compositional change, reduced the transmissibility of class between generations born after the change and lead to greater social fluidity of those cohorts (Breen, 2010). Thus, they suggest that period effects drive changes in social fluidity through cohort replacement instead of affecting all cohorts at one point in time. Consequently, a cohort design seems appropriate to study change in social mobility.

It is intuitively compelling, however, to imagine the occupational structural change in terms of periodic changes largely driven by capitalism's innate trait of creative destruction (Schumpeter, 1943 [2003], p. 83). Nevertheless, it seems unlikely that the process of economic transformation is directly translated into class mobility. In fact, the occupational biography extending from a more or less specialized vocational training to years of occupational experience, and the generally inert nature of preferences and attitudes, render it more likely that employees seek jobs which resemble their old occupations in compensation as well as in the daily work situations. In fact, a study of mass layoffs in an industrial plant in Switzerland finds that two-thirds of the re-employed workers were found in similar jobs two years later (Oesch & Baumann, 2015). It seems, therefore, likely to assume that the transformation of the occupational structure affects social mobility rather gradually since it affects the opportunity structure for labor market entrants rather than forcing (expensively skilled) employees from one class segment into the other. Consequently, period change is likely to be driven by cohort replacement over time.

A decision in favor of a cohort design, however, is problematic due to the lack of available real cohort data.[48] Although there are nationally representative cohort studies among the employed datasets (e.g., NEPS or the GLHS), most of the data used are cross-sectional studies conducted at one point in time. Hence, we create synthetic cohorts interviewed at various stages of their life courses using the time series obtained by cross-sectional data (Deaton, 1985). One advantage of such a design based on several cross-sectional time points is that it's sensitive to demographic changes, for instance by including recently immigrated individuals, which is ever more important as the studied time span increases. In contrast, real cohort data faces the problem of limited representativeness because it cannot account for growing differences between the original sample and the changing composition of the population.

Due to the chosen design, however, the universe for which conclusions are made is not just the cohorts born between year X and Y. The analyzed sample rather represents the average mobility trajectories of birth cohorts over a period of roughly 40 years. It is average in the sense that individuals from one cohort are interviewed at varying ages and varying points in time so that cohort effects are always confounded with age and period effects. While more complex designs allow for the disentanglement of any two of the three perfectly related cohort, age and period effects (Müller & Pollak, 2004), there is no space in this work to follow that path. Further analyses, however, have shown that the cohort trends are robust across different periods.

[48] Examples for real cohort studies are the British cohort study which sampled all individuals born in one week in April 1970 in the United Kingdom or the NLSY79 which covers a representative sample of Americans aged 14 to 21 in December 1978.

7 Empirical description of industrial and post-industrial classes

After introducing the IPICS scheme and testing its validity, this chapter will describe each class with regards to its socio-demographic composition and discuss the relationship between IPICS classes and social stratification. The latter discussion focuses on education and income positions, which are both rewards and entrance requirements for class attainment, as much as significant resources for intergenerational mobility strategies. Again, I am interested in horizontal and vertical class differences and end with the presentation of class profiles, including the information from both the current chapter and Ch. 5. In the following, classes are described on the basis of average demographic characteristics (percentage of women, average age and percentage foreign born or race), family composition (percentage singles, married and separated and the ratio of singles over married individuals that live together with children, i.e., household members younger than 16 in Germany and younger than 18 in the U.S.) and quality of life as a subjective measure of class differentials in the average life satisfaction (respondents' self-assessment). If not indicated otherwise, GSS and Allbus data from 2012 are applied.

7.1 Socio-demographic composition

One of the most important changes in industrialized countries' labor markets over the last 50 years has been the large-scale integration of women into paid employment (Rosenfeld, 1996; Jaumotte, 2003). One of the reasons for women's employment surge in some countries is the expansion of welfare states, whereas low wage labor markets in other countries absorbed the influx of women (Esping-Andersen, 1999). Thus, a post-industrial class structure can be expected to be heavily gendered (Oesch, 2006b). This expectation is supported by my data (Tables 18 and 19).

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Table 18: *Socio-demographic characteristics by IPICS classes, Germany*

	IPICS Class	*Demography*			*Marital status*				*Life Satisf.*
		% Wom	*Ø Age*	*% Immig.*	*% Single*	*% Married*	*% Sep.*	*Single/ Married*	*Ø*
I	Managers & Adm.	33.4	47.1	7.4	19.2	67.8	13.1	0.26	8.00
I	Clerks & Officers	70.8	44.2	5.5	28.7	57.9	13.4	0.49	7.91
I	Skilled Manual W.	9.2	41.0	12.6	38.2	52.6	9.3	0.41	7.74
I	Unskilled Manual W.	26.5	41.9	35.3	36.9	49.5	13.6	0.48	7.50
PI	Professionals	44.0	44.6	11.6	29.0	64.3	6.7	0.15	8.00
PI	Semi-Professionals	70.7	42.5	5.1	34.5	50.7	14.8	0.61	7.78
PI	Skilled Service W.	48.4	43.7	13.6	30.0	55.9	14.1	0.56	7.90
PI	Unskilled Service W.	77.3	41.4	21.0	36.6	52.0	11.3	0.73	7.39
	Petty Bourgeoisie	46.4	46.4	7.9	32.3	52.3	15.4	0.57	7.87
	Farmers	*14.4*	*48.1*	*0.0*	*21.6*	*78.5*	*0.0*	*0.00*	7.57
	Overall average	45.5	43.4	12.0	32.1	56.1	11.8	0.45	7.80
	Observations (N)	1,810	1,810	1,810	1,810	1,810	1,810	1,810	1,809

Note: Allbus 2012. All estimates weighted. Italics denote less than 30 observations.

In both countries, we find that employees in post-industrial classes are substantially more often women than in the industrial segment. Clerks and officers represent the only exception to male domination within industrial classes. In each country, more than two-thirds of the rank-and-file white collar workers (~70%) are women. Unlike Oesch (2006b, p. 105), we do not find a double-peaked age structure, but rather observe that in both countries and in each hierarchy, class incumbents are on average younger, the lower the class position is. This pattern suggests that age-sensitive entrance barriers like educational credentials are responsible for the observed age distribution (Hirsch et al., 2000).[49] The only exceptions are the comparatively old (on average) American skilled manual workers. This exception may result from the serious contraction of this class since the early 1970s, which over time limited the supply of young skilled manual workers.

[49] A more detailed analysis of the age distribution within each class shows that 56- to 64-year olds are overrepresented among professionals, managers and administrators and semi-professionals, whereas the 18- to 25- year olds are overrepresented among the unskilled workers and, in Germany, the skilled manual workers. Other than this, we do not find u-shaped age profiles which are said to be negatively associated with occupational growth (Kaufman & Spilerman, 1982).

Table 19: Socio-demographic characteristics by IPICS classes, U.S.A.

	IPICS Class	*Demography*					*Marital status*				*Life Sat.*
		% Wom	*Ø Age*	*% AA*	*% Hisp.*	*% Immig.*	*% Single*	*% Married*	*% Sep.*	*S/M*	*Ø**
I	Managers & Adm.	39.7	45.3	10.4	9.6	12.4	11.6	74.9	13.5	0.35	3.97
I	Clerks & Officers	68.1	40.8	12.6	16.5	16.5	28.7	48.6	22.7	0.58	3.78
I	Skilled Manual W.	24.1	46.1	17.1	18.6	14.2	14.6	57.8	27.6	0.80	3.76
I	Unskilled Manual W.	23.1	40.9	22.3	27.0	23.9	39.4	45.7	14.9	1.00	3.66
PI	Professionals	40.6	44.1	9.4	7.0	22.2	27.4	59.0	13.6	0.31	3.94
PI	Semi-Professionals	67.1	41.8	9.6	9.5	13.1	27.6	61.5	10.9	0.38	3.94
PI	Skilled Service W.	52.4	39.7	15.1	18.5	10.2	28.0	51.1	20.9	0.68	3.83
PI	Unskilled Service W.	63.4	37.0	20.2	21.8	11.3	47.0	35.2	17.8	1.57	3.71
	Petty Bourgeoisie	53.6	46.3	14.2	14.7	17.1	20.6	59.6	19.8	0.52	3.81
	Farmers	*0.0*	*47.0*	*0.0*	*60.0*	*100.0*	*0.0*	*100.0*	*0.0*	*0.00*	4.03
	Overall average	52.4	41.4	14.9	16.3	14.9	30.5	52.3	17.3	0.79	3.83
	Observations (N)	1,488	1,488	1,488	1,488	1,487	1,488	1,488	1,488	1,488	9,140

Note: GSS 2012 (* PSID 2011). Figures denote percent except indicated otherwise. All estimates weighted. Italics denote less than 30 observations. AA = African American; Hisp = Hispanic

IPICS classes are also characterized by different degrees of ethnic (Germany) and racial (United States) diversity. In both countries across segments, the share of minority employees, i.e. immigrants, people of color or Hispanics, increases the lower the class is. The only remarkable horizontal difference is that the share of immigrants is higher among unskilled manual than unskilled service workers. This difference can be due to missing language skills, social competence or discriminatory hiring practices. Even in cases were such skills were evidently inconsequential for performing a service position, e.g., as a cleaner, Hieming and colleagues found that personnel managers of service sector firms in Germany often select job applicants on the basis of language skills, an appropriate appearance or social competence (Hieming et al., 2006). Moreover, the high share of foreign-born unskilled industrial workers in Germany is additionally contingent on European post-war history (Bade & Weiner, 1997; Massey et al., 1998). After the Iron Curtain prevented German refugees from Central and Eastern Europe from migrating, immigrants from Mediterranean countries became the labor supply that fueled Germany's industrial Wirtschaftswunder following WWII.

With regards to family composition, we do not find many horizontal differences. Corresponding to the younger age, singles are far more prevalent among the working classes than among managers or professionals in both countries. This is due less to a higher frequency of separation than to the remarkably low prevalence of marriage, which is generally highest among managers and, in Germany, among professionals. Thus, the highest occupational classes in both countries frequently also experience what is not only considered the normal, stable and most prestigious form of relationship but, from an intergenerational perspective, a family structure which advantages intergenerational immobility. In contrast, families in lower classes more frequently experience separations or single motherhood which are known to have detrimental effects on mobility chances (Biblarz & Raftery, 1993; Biblarz et al., 1997; Biblarz & Raftery, 1999).

Whether the conditions for family reproduction are also stratified by class can be studied by comparing across classes the ratios of the share of singles with children relative to the share of marrieds with children. The overall average below one indicates that, in both countries, marrieds with children are more frequent than singles with children. Not surprisingly, however, we do see a substantial difference by class. The lower the class is, the greater the ratio in both countries. In Germany, this pattern is mostly driven by class differentials in the share of married parents, so that married parents are less frequent in lower classes, whereas the share of singles with children is relatively similar across classes. In the United States, in contrast, single parenthood is more frequent and married parents are less frequent the lower the class is. Class differences are correspondingly higher in the United States, with unity among unskilled manual classes (1, and in Germany 0.48) and an even higher share of single parents relative to married among unskilled service workers (1.57 and 0.73). To what extent such class-specific conditions result in different intergenerational mobility patterns will be discussed in the empirical chapters ahead. Finally, we can substantiate our account of vertical class differences with the subjective measure of average life satisfaction.[50] Corresponding to the differences in family composition and working conditions, we find that life satisfaction – with the exception American skilled service workers – linearly declines across rank-ordered classes so that it is highest among managers and professionals and lowest among unskilled service and manual workers in both countries.

[50] Unfortunately, results are not directly comparable across countries because life satisfaction is recorded with a five-point Likert scale in the American data and a ten-point Likert scale in the German survey. Although the five-point item could be easily rescaled to create comparative mean statistics, there is some evidence that mean scores are significantly higher if a five-point rather than a ten-point scale is used (Preston & Colman, 2000; Dawes, 2008). Hence, we only analyze within country differences.

7.2 Class and educational assets

The joint consideration of education and class is important for the understanding of contemporary stratification. On the one hand, educational attainment is class specific (OE), on the other hand, it is highly associated with class attainment (ED) (Breen et al., 2009, 2010; Breen & Karlson, 2014). In fact, educational attainment is the single most important factor for occupational attainment and is thus of great importance for the access to most class locations outside of farming (Blau & Duncan, 1967; Ishida et al., 1995). Hence, parental investment into children's education is essential for achieving class mobility. This is true for upward mobility as well as social reproduction in high class families because the entrance to high positions is commonly conditioned on attaining at least some form of educational credentials. The educational distribution across classes can thus be interpreted as indicating the educational assets generally available within each class for mobility strategies.

Table 20: Educational attainment within IPICS classes, Germany

	IPICS Class	*Schooling (%)*				*Academinc / Vocational Training (%)*			
		Prim.	Low	Mid	High	Uni	Yes	G&T	O&S
I	Managers & Adm.	0.0	13.6	26.1	10.7	49.7	62.1	46.1	53.9
I	Clerks & Officers	1.0	11.5	51.5	16.8	19.2	75.4	18.1	81.9
I	Skilled Manual W.	0.8	33.2	43.0	4.3	18.7	87.9	84.5	15.6
I	Unskilled Manual W.	4.8	54.7	27.6	8.1	4.8	61.2	77.7	22.3
PI	Professionals	0.0	0.5	1.3	0.5	97.6	2.6	*60.0*	*40.0*
PI	Semi-Professionals	0.0	6.6	33.6	21.2	38.7	54.3	24.7	75.3
PI	Skilled Servant W.	0.6	29.8	42.3	13.4	13.9	80.8	59.4	40.7
PI	Unskilled Servant W.	2.9	44.3	39.4	8.5	4.9	64.2	56.4	43.6
	Petty Bourgeoisie	0.0	10.4	34.7	17.8	37.1	72.4	53.2	46.8
	Farmers	*0.0*	*65.5*	*7.7*	*0.0*	*26.8*	*82.3*	*56.4*	*43.6*
	Overall average	0.9	22.0	34.2	10.6	32.4	63.5	55.1	44.9

Note: Allbus 2012 (N=1,801 for schooling and 1,172 with a vocational degree). All estimates weighted. Italics denote less than 30 observations. Refer to surrounding text for the abbreviations.

For our analysis, we study class-specific educational attainment in 2012 in both countries. Because the educational systems in the United States and Germany are very different (Shavit & Blossfeld, 1993; Shavit et al., 2007; Pfeffer, 2008), we abstain from cross-country comparisons but use country-specific categories to indicate the highest educational attainment reached at the time of the interview (see the notes to the tables for more information on samples and categories). We further study whether individuals successfully attended a vocational school in Germany, and differentiate between apprenticeships in craft and technical occupations (G&T) and frequently school-based vocational trainings in business, sales and services (O&S). While industrial mechanics, draftsmen, electricians or masons have to undergo a technical apprenticeship, shop clerks, mail carriers, chefs and servers usually attend a commercial vocational school. This rather broad historical differentiation is unfortunate because various clerical occupations are taught in vocational business schools or within the commercial (*kaufmännisch*) tier of the dual vocational training system. Hence, we cannot expect that we will find pronounced differences between the vocational training of intermediate industrial and post-industrial occupations.

We first study the educational stratification of classes in both countries (Tables 20 and 21). There is a linear hierarchy of educational assets observable within each IPICS hierarchy. Managers and administrators (GER: 50%; U.S.: 57%) and professionals (GER: 98%; U.S.: 81%) obtain most frequently tertiary degrees (Uni, BA, BA+). This underlines that, more than in any other class, professionals pursue a closure strategy driven by educational credentials (Parkin, 1974, 1979). Thus, in both counties professionals do not only have the highest educational assets at their command, but their offspring also have to achieve the highest credential if class reproduction is aimed for. Interestingly, clerks and officers are on average better educated than skilled workers, although jobs in the former class were considerably worse regarding employment relations and job quality characteristics. Finally, both unskilled working classes leave educational institutions often attending high school at most (U.S. HS: 56% (UMW) and 64% (USW) or lower secondary degree (GER Low: 55% (UMW) and 44% (USW).

Table 21: Educational attainment within IPICS classes, United States

	IPICS Class	*Schooling (%)* < HS	HS	Some college	BA	BA+
I	Managers & Adm.	3.3	32.1	7.8	38.3	18.5
I	Clerks & Officers	5.1	64.2	8.6	17.9	4.2
I	Skilled Manual Worker	27.8	55.9	15.4	0.9	0.0
I	Unskilled Manual Worker	35.4	56.0	4.3	3.7	0.7
PI	Professionals	0.0	13.9	4.8	44.4	37.0
PI	Semi-Professionals	1.1	28.1	10.8	40.9	19.1
PI	Skilled Service Worker	14.7	58.2	10.2	13.8	3.2
PI	Unskilled Service Worker	21.7	64.1	7.6	5.6	1.0
	Petty Bourgeoisie	15.8	53.5	6.5	19.4	4.7
	Farmers	*60.0*	*0.0*	*0.0*	*40.0*	*0.0*
	Overall average	13.6	48.5	8.3	20.2	9.4

Note: GSS 2012 (N=3,003). All estimates weighted. Italics denote less than 30 observations. Refer to surrounding text for the abbreviations.

Additionally, we find similarly pronounced horizontal differences in both countries. Professionals and semi-professionals obtained significantly higher educational credentials than managers and administrators and clerks and officers. Especially in the United States, post-industrial classes outpace the industrial top classes in credentials. Tertiary education is more frequent among semi-professionals (60%) than among managers and administrators (57%). In the working classes, differences are less pronounced, though still visible. While German skilled manual workers leave educational institutions better qualified than skilled service workers, unskilled service workers are more likely to obtain intermediate school degrees (39% vs. 28%) while unskilled manual workers rather obtain lower secondary degrees (55% vs. 44%). Differences are more pronounced in the U.S., where both unskilled and skilled service classes are much more likely to obtain a graduate (BA: SW: 14% and 6% vs. MW: 1% and 4%) and even a post-graduate degree (BA+: SW: 3% and 1% vs. MW: 0% and 1%).

Comparing both countries, we find evidence for a narrower skill distribution in Germany (Freeman & Schettkat, 2001). More than one in two Germans completed an apprenticeship and even more than half of the individuals working in unskilled positions attended some vocational training (Weinkopf, 2007). Since the 1980s, the share of vocationally trained employees in unskilled positions increased substantially, crowding out the less qualified even in low-skilled positions (Hieming et al., 2006). Consequently, we do not find strong vertical differences with regards to apprenticeships. Skilled manual (88%) and service workers (81%) are most likely to have successfully obtained a vocational degree. Although not particularly pronounced, we do find some horizontal differences regarding the field of study of these occupational trainings. While manual workers predominantly obtain a technical degree (85%), service workers frequently also attend apprenticeships in the commercial track or attend a vocational school (41%). American vocational training is generally attained via technical colleges or in the career and workforce education programs of community colleges (Roksa et al., 2007). Consequently, spending some years in college and, presumably, obtaining an associate degree is the most important form of post-secondary education among skilled manual workers. Whether or not community colleges draw students from four-year undergraduate programs, they seemingly also prepare non-negligible shares of skilled manual (15%) and service workers (10%) as well as unskilled service workers (8%) for later employment opportunities (Brand et al., 2014).

Two crucial points made in the discussion of class-specific educational attainment warrant repetition. First, we observe in both countries that educational attainment tends to be higher in post-industrial than industrial classes. This is in accordance with the idea that education is more important for placement in the post-industrial than in the industrial hierarchy. It further indicates, much in line with expectations from post-industrialization theory and the skill-biased technological change hypothesis, that it is in the post-industrial hierarchy where the upgrading of the occupational structure takes place. Moreover, we observe that the vertical ranking within each hierarchy of the IPICS class scheme reflects the educational hierarchy quite well. We will now turn to the joint study of economic stratification and class.

7.3 Class and economic assets

The most important vertical difference in terms of life chances between occupations is the level of remuneration. A valid class scheme should therefore be sensitive to differences in individual labor income. While wage inequality is a good indicator for the current vertical class position, household income is the more important indicator for the overall material well-being because it includes all types of income and accounts for the social contexts in which resources are typically pooled and financial decisions are made (Gottschalk & Danziger, 2005). Especially from an intergenerational perspective, household income is the more important factor affecting class reproduction or social mobility through direct investment into children's capacity for mobility. Better neighborhoods and enrichment expenditures like private schooling and high quality child care, books and computers, but also investment in leisure time activities, like opera, theater, museums or vacations are crucial for educational performance and the formation of occupational preferences (Bowles et al., 2005; Duncan & Murnane, 2011; Corak, 2013). Therefore, class differences of economic returns on class, but also average class-specific available household resources for social reproduction in 2012 are studied.

The latter relative household class position is derived according to the dominance rule, i.e. from the highest class individual in the household. The individual net labor income comprises wages, benefits, tips and gratuities after taxes, while the household net income is the sum of all household members' labor incomes, welfare transfers and other incomes net of taxes adjusted for household size.[51] To allow for country comparisons, income positions are calculated relative to the (weighted) mean incomes, such as unity equals the average income and any number above or below one indicates the percentage difference to the mean income. In order to compare income returns to class and available economic resource differences, the mean relative income position, its standard deviation and the income quintiles to study the distribution of incomes is displayed in the following tables.

[51] Eurostat's OECD-modified equivalence scale is used for household size adjustment (Hagenaars et al., 1994). To achieve equivalization, the household income is divided by the sum of the needs-weighted number of household members. The weight of the household head equals one, every child below age 14 is weighted by 0.3, and every other household member is assigned a weight of 0.5.

Table 22: Net monthly earnings position and quintiles, Germany

	IPICS Class	*Net Monthly Individual Income Position (in %)*						
		average	*Std. dv.*	*<20%*	*20-40%*	*40-60%*	*60-80%*	*>80%*
I	Managers & Administrators	1.47	0.99	3.7	13.0	13.6	25.3	44.3
I	Clerks & Officers	0.84	0.43	25.4	21.1	24.2	14.8	14.6
I	Skilled Manual Workers	0.92	0.38	13.1	21.2	27.2	27.7	10.8
I	Unskilled Manual Workers	0.75	0.37	22.6	26.8	31.9	16.0	2.8
PI	Professionals	1.72	2.14	4.4	6.9	14.2	21.2	53.4
PI	Semi-Professionals	0.88	0.44	20.0	22.6	28.0	16.8	12.6
PI	Skilled Service Workers	0.86	0.47	21.9	23.5	20.1	23.3	11.3
PI	Unskilled Service Workers	0.48	0.24	59.8	26.3	11.5	2.3	0.0
	Petty Bourgeoisie	1.09	0.88	19.3	22.2	15.3	22.5	20.8
	Farmers	*0.99*	*0.32*	*7.2*	*10.5*	*28.7*	*39.2*	*14.4*
	Overall average	1.00	0.97	20.1	19.9	21.4	19.8	18.8

Note: Allbus 2012; N = 1,640. All estimates weighted. Italics denote less than 30 observations.

Tables 22 and 23 present average labor income positions by class in Germany and in the United States. The first column in each table provides information about the average income position, and the second column provides information about its standard deviation. In each hierarchy, the relative income position declines the lower the class position in both countries. The only exceptions are skilled manual workers who obtain higher labor incomes than clerks and officers. A quick glance at the class-specific income distribution reveals the source of the different income positions. In the U.S., skilled manual workers more frequently belong to the highest income quintile, whereas clerks and officers are more concentrated within the middle quintiles. In Germany, in contrast, skilled manual workers concentrate more in the middle of the distribution, while the income distribution of clerks and officers is right-skewed. While professionals obtain the highest incomes in Germany, managers and administrators earn the most in the United States. The higher income inequality in the U.S. is reflected in a greater range and higher standard deviation of average income positions (Gottschalk & Smeeding, 1997; Corak, 2013). Ignoring the highest classes, income differences between high and low classes are less pronounced in industrial than in post-industrial hierarchies. This is partly due to the comparatively high income position of unskilled manual workers, which may result from higher union coverage, which is well known to reduce wage dispersion in general and between manufacturing jobs in particular (Freeman, 1980; Card et al., 2004; Western & Rosenfeld, 2011). In fact, the share of union members among unskilled manual workers is between two (Germany) and three

(United States) times higher than the share among unskilled service workers (not displayed).

Table 23: Net monthly earnings position and quintiles, United States

	IPICS Class	*Net Monthly Individual Income Position (in %)*						
		average	*Std. dv.*	*<20%*	*20-40%*	*40-60%*	*60-80%*	*>80%*
I	Managers & Administrators	2.42	2.86	5.5	4.3	13.8	39.3	37.1
I	Clerks & Officers	0.68	0.39	9.8	27.3	26.3	33.6	3.1
I	Skilled Manual Workers	0.79	0.50	14.5	21.3	20.8	28.1	15.3
I	Unskilled Manual Workers	0.59	0.46	16.7	36.1	29.2	14.0	4.1
PI	Professionals	1.90	2.04	6.6	6.4	14.0	27.0	46.1
PI	Semi-Professionals	1.18	1.49	10.5	20.8	12.1	38.3	18.4
PI	Skilled Service Workers	0.57	0.45	26.6	32.0	14.6	21.4	5.5
PI	Unskilled Service Workers	0.38	0.35	43.7	30.0	18.5	6.7	1.1
	Petty Bourgeoisie	0.88	1.66	33.8	25.7	13.7	13.9	12.9
	Farmers	*0.91*	*n.a.*	*0.0*	*0.0*	*0.0*	*100.0*	*0.0*
	Overall average	1.00	1.53	21.1	23.0	17.5	23.7	14.7

Note: GSS 2012; N = 1,054. All estimates weighted. Italics denote less than 30 observations.

Horizontal differences are more discernible with regards to the income distribution within each class. If we compare income quintiles, we easily see that the incomes of managers and administrators and professionals are similarly skewed to the left. Comparing income quintiles between industrial and post-industrial working classes, however, there are more pronounced income differences between the two segments. In both countries, the income distribution of service workers is more right-skewed than that of manual workers, which most likely results from the compressing effect of union coverage on wages. Most substantial, however, are the income differences between unskilled manual and service workers. The incomes of every second American unskilled service worker and around 40% of German unskilled service workers are within the lowest income quintile. The percentages of low-income unskilled manual workers in both countries account for only half of these shares respectively. This difference remains nearly the same even if we compare incomes separated by sex or among full-time employees only.

Table 24: Net Household income position and quintiles, Germany

	IPICS Class	*Net Monthly Household Income Position (in %)*						
		average	*Std. dv.*	*<20%*	*20-40%*	*40-60%*	*60-80%*	*>80%*
I	Managers & Administrators	1.29	0.71	8.7	18.9	14.6	20.2	37.7
I	Clerks & Officers	0.97	0.44	18.8	20.1	20.5	23.9	16.8
I	Skilled Manual Workers	0.88	0.37	19.1	25.5	24.7	18.7	11.9
I	Unskilled Manual Workers	0.75	0.41	38.6	22.6	18.9	9.2	10.7
PI	Professionals	1.50	1.42	6.0	12.3	11.6	26.3	43.9
PI	Semi-Professionals	0.98	0.46	17.6	19.8	19.9	24.1	18.6
PI	Skilled Service Workers	0.88	0.44	25.5	23.7	18.3	18.1	14.4
PI	Unskilled Service Workers	0.67	0.34	45.6	24.9	14.1	11.3	4.1
	Petty Bourgeoisie	1.04	0.60	19.4	26.0	9.9	16.7	28.0
	Farmers	*0.90*	*0.49*	*21.6*	*28.7*	*24.9*	*17.7*	*7.2*
	Overall average	1.00	0.71	20.6	21.5	18.1	19.8	20.0

Note: Allbus 2012; N=1,569. All estimates weighted. Italics denote less than 30 observations.

The inspection of household income position provides information about the total available material resources in each class (Tables 24 and 25). It is clear at once that even in the case of household incomes, class inequality in the United States is noticeably higher than in Germany. Excluding farmers due to unreliably small observations, class-specific average household income positions after transfers range between 58% and 160% of the mean in the U.S., but only between 67% and 145% of the mean in Germany. A quick comparison of household and individual income shows that indeed the low individual wages of unskilled servants as well as clerks and officers are on average only one of several household income sources. Although families of unskilled service workers still have less economic capital at their command than comparably skilled manual workers, the income gap narrowed substantially in both countries. With individual income differences between classes now flattened out, a clear vertical ranking is observable within each hierarchy. At the bottom of the industrial and post-industrial class structures are the families of unskilled manual and service workers, with household incomes well below the average. While skilled manual and service worker families obtain significantly higher incomes than unskilled workers, they still remain well below average family income. Only families of semi-professionals and clerks and officers are around or, in case of American semi-professionals, well above average family incomes. Finally, families of professionals and managers obtain the most economic resources with total incomes ranging between 130% and 160% of the average. Not only the relative position but also the distribution across quintiles is more similar between segments. While fewer families of unskilled service workers fall in the lowest income quintiles, the share of unskilled manual families is higher compared to individual incomes. The partial convergence of both distributions suggests that we have a relatively high share of inter-class households with relations most frequently between male manual and female service workers. More important, however, are the still alarming income differences. While the family income distribution among professionals and managers very much resembles that of their individual incomes, the income distribution of unskilled workers, and to a lesser extent skilled workers, is heavily right-skewed. One-third (United States) to nearly one-half (Germany) of individuals from the lowest classes are stuck in the lowest family income quintile.

Table 25: Net Household income position and quintiles, U.S.

	IPICS Class	*Net Monthly Household Income Position (in %)*						
		average	*Std. dv.*	*<20%*	*20-40%*	*40-60%*	*60-80%*	*>80%*
I	Managers & Administrators	1.60	1.05	4.8	17.3	13.1	24.5	40.3
I	Clerks & Officers	0.97	0.79	15.7	27.6	16.9	25.6	14.2
I	Skilled Manual Workers	0.83	0.89	23.6	40.0	12.4	10.3	13.6
I	Unskilled Manual Workers	0.59	0.44	29.3	36.2	16.0	17.0	1.5
PI	Professionals	1.47	0.99	6.1	18.7	14.4	21.9	38.9
PI	Semi-Professionals	1.35	0.95	9.2	17.7	18.3	23.5	31.4
PI	Skilled Service Workers	0.83	0.76	27.9	25.3	16.4	19.1	11.3
PI	Unskilled Service Workers	0.58	0.54	34.7	35.6	15.2	8.7	5.9
	Petty Bourgeoisie	1.05	0.93	19.3	23.3	22.4	15.5	19.5
	Farmers	*0.60*	*n.a.*	*0.0*	*100.0*	*0.0*	*0.0*	*0.0*
	Overall average	1.00	0.89	20.2	27.0	16.0	17.9	18.9

Note: GSS 2012; N=1,347. All estimates weighted. Italics denote less than 30 observations.

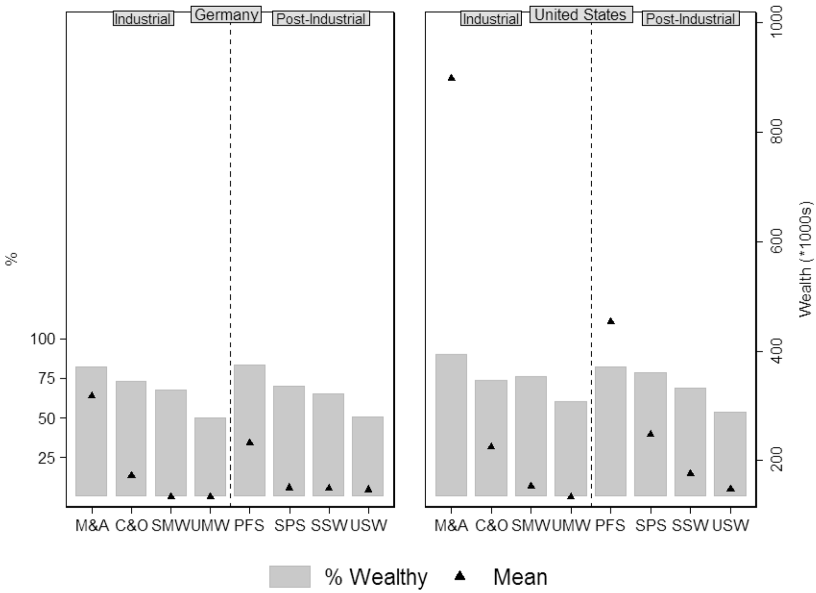
An even better indicator for the available economic capital is arguably a family's net worth. While families in the middle classes seldom have the chance to accumulate substantial wealth other than the house they live in, families in the highest classes can become rich either – and most frequently – through their work incomes or through inheritances and gift transfers (Keister, 2000; Atkinson et al., 2011; Wolff, 2014). While bequests are the most direct link between parental and offspring wealth, there are other ways in which wealth can affect social mobility (Keister, 2005; Beller & Hout, 2006a). In societies with expansive private educational institutions, wealth can be used to promote children's educational attainment e.g., by allowing for college enrollment, especially if borrowing opportunities decrease and tuition fees rise (Morgan & Kim, 2006; Belley & Lochner, 2007). Furthermore, wealth can be used to insure families against offspring's educational failure and allow for more risky careers (Pfeffer & Hällsten, 2012). From this perspective, wealth is a material and psychological safety net that can be accessed nearly instantaneously if needed.

Figure 14 displays the total net worth by class, i.e. wealth including, among others, property value, tangible goods, assets, annuities and stocks in each country in 2007. More recent data was available but discarded in order to avoid any bias introduced by the Great Recession, especially in the U.S. (Pfeffer et al., 2013). The bars represent the share of individuals in each class who possess wealth greater than \$10,000. The triangles represent the raw average of wealth per class. While wealth ownership structure (above \$10,000) by class is similar in the United States and Germany, average wealth is considerably higher among Americans. Net of differences in power parities and adjusting for household size, Americans are on average worth \$323,067, whereas Germans' average wealth amounts only to \$115,548.[52] In both countries, individual worth is heavily structured by class membership. The lower the class position, the lower an individual's net worth. More important are horizontal differences between the top classes in each hierarchy. Managers and administrators command in both countries substantially more economic assets than professionals. Compared to the latter, the former are on average twice as rich in the United States and still 30% richer in Germany. Although class differences are driven mostly by excessive wealth among the richest managers and administrators, this points towards a higher availability of abundant economic capital for mobility strategies.[53] With such a safety net, at least some children of managers and administrators can make more risky career choices and survive even ruinous situations without suffering too much downward mobility.

[52] These values are slightly below the ones reported by Pfeffer and Grabka (2014), most likely because net worth is adjusted for household size, and petty bourgeoisie as well as farmers are excluded from this analysis.

[53] While this may be overstated for the whole class of managers and administrators, it is also likely that the extent of wealth inequality is underestimated because the wealthiest groups are underrepresented in the datasets at hand (Juster et al., 1999; Pfeffer et al., 2014).

Figure 14: *%-wealthy (>$10,000) and mean HH-worth by class in 2007*



Note: SOEPv29 (N= 10,939); PSID 2011 (N= 10,939). Share and average is calculated for people with more than $10,000 in 2007. German Euros are converted into Dollars and adjusted using OECD purchasing power parities. Wealth comprises business, financial and valuable assets, transaction accounts, tangible goods, real estate and home equity value net of mortgages and other debt. Wealth is adjusted by household size (employed over age 18), class assignment based on individual class position. All estimates weighted.

The description of economic inequality by class yields two immediate results. First, in both countries individual and household incomes, as well as wealth, are distributed very unequally between classes. The resulting vertical order of classes by income is roughly similar in both countries and very much reflects the educational and class hierarchy. While professional and managers and administrators obtain the largest incomes and possess the greatest wealth, semi-professionals, clerks and officers and (in Germany) skilled manual and service workers enjoy frequently middle class incomes and have moderate wealth. In both countries, individual and household incomes and the wealth of unskilled manual and service workers are particularly low. Second, there are horizontal differences with regards to economic capital. Unskilled service workers obtain the smallest individual incomes in both countries. However, income differences between unskilled manual and service workers disappear once household income is taken into account. Moreover, abundant wealth is particularly pronounced among managers and administrators and far less among professionals. To sum up, economic and cultural differences strongly support that the IPCIS class scheme is a useful map for vertical and horizontal differences in contemporary societies.

7.4 Class profiles

Combining all information gathered so far, class profiles can be summarized for each class focusing specifically on similarities in terms of resources and assets, as well as living and working conditions that support the expectation of class affinity resulting in mobility patterns. I will not further differentiate the profiles by country, but rather choose to ignore national idiosyncrasies in favor of characteristic properties across countries.

On average, *managers and administrators* enjoy very advantageous social positions. They are mostly men who are seldom foreign-born or from an ethnic or racial minority. Working in medium-sized enterprises, managers and administrators frequently direct and lead other employees. While working long hours even on weekends and nights, they usually live in traditional relationships, i.e., they are married with children which eases the conflicts of career and family obligations. Although educationally less well-endowed, they command exceptionally high economic resources. Economic assets as well as diverse fringe benefits insure managers and administrators against many misfortunes, allowing them to raise their children under promising conditions. Acknowledging their superior positions, managers and administrators are exceptionally satisfied with their own lives. Given the expansion of the educational system and the growing importance of education for positional attainment, however, it is likely that mobility frequently leads out of these positions into professionals or even semi-professionals. While opportunities of wealth accumulation may be more limited in the latter classes, earning chances are rather similar among professionals.

At the bottom of the white collar chain-of-command, *clerks and officers* are the rank-and-file workforce of modern bureaucracies. Mostly women, they populate the offices in rather larger and frequently public organizations. The heterogeneous class comprises of a few well-educated and high earning employees and large shares of simple office clerks and secretaries who rarely attained more than secondary education and frequently populate lower income positions. Frequently married, they conform to the traditional family model. Judging by the comparatively high share of separations and the relative frequency of singles with children in this class, however, this is met only with partial success. Nevertheless, reported life satisfaction is high, which may at least in part result from the high degree of economic stability due to the prevalence of standard employment relations and permanent contracts. Given the generally decreasing employment opportunities for clerks and officers in Western countries (Oesch, 2013), it is likely that children, especially sons, of clerks and officers are frequently forced to be mobile. However, the available educational and economic resources in this class are limited such that the offspring of the white collar workers may be more likely to end up in blue or pink collar occupations than achieve substantial upward mobility.

At the top of the blue collar manual workforce are the *skilled manual workers* including craftsmen, lower grade technicians and foremen. Mostly men with diverse ethnic backgrounds, skilled manual workers have generally attained some formal, sometimes even post-secondary, vocational training. Consequently, most jobs within this class require at least some technical training. In several dimensions, skilled manual workers represent the shop floor elite. Working largely in private enterprises, they frequently assume some of their employer's authority through supervision tasks. Their middle class status is also attested by their higher than average proportion of marrieds and the highest income positions among all four working classes. Nevertheless, life satisfaction is somewhat below that of the non-manual classes. Although skilled manual workers have on average higher resources at their command than any of the other working classes, it is not unlikely that the offspring is diverted to similar working class positions if available because of the quite distinct technical nature of these occupations. Upward mobility is arguably most likely to lead to semi-professional positions which combine academic and vocational elements.

Unskilled manual workers, finally, are at the bottom of the industrial class hierarchy. Like all manual workers they are predominantly men, and they are the most ethnically and racially diverse class. In their working places, unskilled manual workers frequently populate the lowest positions. Being the backbone of industrial production, few of them achieved high educational credentials, have access to good fringe benefits or favorable working conditions. Their unstable economic situation is worsened by frequent atypical family constellations with a comparatively high share of singles with children. Consequently, unskilled manual workers are among the least satisfied of all classes. It is more than likely that immobility is particularly high in this class due to resource constrains. While horizontal mobility may always be an option, especially for daughters, upward mobility may be most likely to lead to skilled manual positions which share with other manual positions the job context and the relative importance of technical skills.

The top of the post-industrial hierarchy is populated by the professional class. Although a majority are men, a proportion of women enter the *professionals* as well. Frequently working for large organizations, professionals enjoy the highest degree of occupational autonomy. After a long march through the educational institutions, professionals are not only among the most educated employees, but entrance to their positions is regulated solely by educational credentials. Making up the upper middle class, professionals live rather traditional lifestyles. Frequently married, their children are born into formally “intact” families, with single parenting being rather an exception. Their income position and wealth are considerable and are only surpassed by managers and administrators. What they do not command in economic resources, however, they own in educational capital. Thus, professionals are likely to assure immobility through educational investments unparalleled in other classes.

Like clerks and officers, *semi-professionals* are mostly women of the racial and ethnic majority. Unlike the former, however, semi-professionals are clearly among the higher classes in contemporary society. Having mostly attained some post-secondary education, they earn modestly well in spite of being frequently part-timers. In various senses, semi-professionals are a welfare state class. Frequently employed by public agencies, their primary line of work is in social and health services, services that allow (single) women with children to work while representing a stable supply of occupational opportunities (Esping-Andersen, 1993). While semi-professionals do not command similar amounts of educational and economic resources as professionals do, the similarity and indeed independence of both classes’ working environments, primary skills and working processes nourish expectations about some degrees of upward mobility among the offspring of the semi-professionals. However, the lack of economic resources also limits the capacity of semi-professional parents to invest in the educational career if compared to professionals.

Men and women equally populate the *skilled service workers,* who are the craft workers of the modern service world and the faces of the more customer-oriented public agencies. As part of the lower middle class, skilled service workers are comparatively well-educated, however, on average they do not reach similarly high incomes like skilled manual workers or semi-professionals do. Their working conditions are rather mixed: they relatively often direct other workers, but also frequently work atypical hours. Nevertheless, they enjoy comparatively high levels of life satisfaction. While skilled service workers share with manual workers a working class background, they also attach to the higher tiers of the post-industrial hierarchy with which they frequently share their working contexts. Thus, horizontal mobility to manual working class positions is as likely as climbing up the ladder in the post-industrial hierarchy. Like the other working classes, however, skilled service workers also have to cope with limited economic resources.

The pink collar *unskilled service workers*, finally, populate the lowest ranks in the post-industrial hierarchy. Mostly women from an ethnic and racially diverse background, they rarely attained higher education nor do their occupations require hard-to-learn skills. Arduous and unstable working conditions, along with a strenuous family life characterized by single parenting and particularly constrained budgets, results in particularly low levels of life satisfaction. Forsaken by unions and at the mercy of their employers, unskilled service workers are truly the most deprived class location in societies. While the lack of resources and the unstable conditions may very well foster immobility in this class position, mobility most likely rather leads to the lower manual positions than to the higher service occupations which require more than anything else children's success in the educational system.

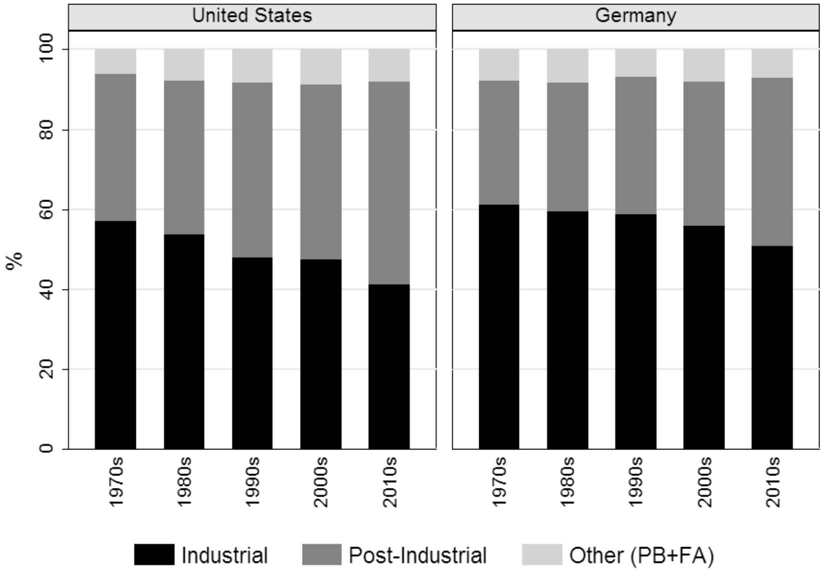
The class profiles indicate vertical and horizontal differences that may affect mobility patterns. While the horizontal differentiation is considered to represent a general barrier to mobility between the two hierarchies, it is clear that the pronounced economic differences restrict upward mobility from lower classes and may defer them to horizontally similar class locations. At the same time, the gendered class structure offers different opportunities to sons and daughters. While women are more likely to move to the post-industrial service hierarchy, sons are more likely to move to industrial classes or, of course, into the professionals. Therefore, mobility matrices have to take into account that the opportunity structure differs by gender. Such mobility matrices take all three types of class barriers to mobility i.e., horizontal, vertical and gender-based ones into account.

First, it can be assumed that individuals from all classes have some bias towards immobility given resources constraints, utility and costs associated with leaving an origin class position. While parental economic and cultural resources constrain the "potential range" of mobility strategies' outcomes, individual decisions affect the realization of an opportunity (Goldthorpe, 1996, p. 491). On the one hand, class-culturally induced risk-averse preferences and the resulting strategies of status maintenance favor decisions that raise the chance of reaching similar class locations, even if this means conceding chances for upward mobility (Breen & Goldthorpe, 1997; Rogge & Groh-Samberg, forthcoming). Additionally, psychological costs incurred by leaving an origin class further constrain mobility. These costs derive from the geographic, social and economic distance that not only require resources to bridge it, but also implies the digging of a trench which socially separate the mobile individual from relatives, friends and acquaintances left behind. The different class profiles and the socioeconomic differences between classes have further shown that there is no reason to expect also mobility differences between vertically similar but horizontally different classes. In fact, it remains questionable to what extent clerks and officers, on the one hand, and semi-professionals, on the other hand, are vertically similar. Thus, if we were to produce one hierarchy, e.g. with regards to economic resources, we would have to rearrange classes. The problem is, however, we would end up with a different hierarchy if educational attainment is taken as sorting measure. Thus, we refrain from constructing a hierarchy at this point. Further below (Ch. 10), a statistical model will be developed that allows to incorporate the speculations about the horizontal and vertical differences in relative mobility chances. But before such a model is conceived, I first study to what extent IPICS maps the occupational-structural change depicted in Ch. 2.1.

7.5 Class and structural change

We have seen in Ch. 2.2 that post-industrialization theories once predicted a fundamental change of the occupational structure towards the production of services and the decline of manual work. Based on the full-time employed aged 18 to 64, Figure 15 shows the distribution of the aggregated class segments in the United States and Germany for the last five decades. In both countries, industrial classes shrink while post-industrial occupations surge. The two other classes, i.e. petty bourgeoisie and farmers, remain largely unchanged ranging between 6% and 9%. In the 1970s, labor markets in both societies were dominated by industrial and organizational positions. Industrial classes made up 57% of the U.S. and 61% of the German occupational structure, whereas post-industrial classes accounted for a mere 37% and 31%. Over the last five decades, however, post-industrial classes became rapidly prevalent, increasing their share by 14% in the U.S. and by 11% in Germany. Finally, the composition of the residual category changed over time. The share of farmers dropped from originally 3% to 0.1% in the U.S. and from 4% to 1% in Germany. At the same time, the petty bourgeoisie increased its share from 5% to 6% in Germany and from 3% to 7% in the United States.

Figure 15: Class distribution in Germany and the United States.

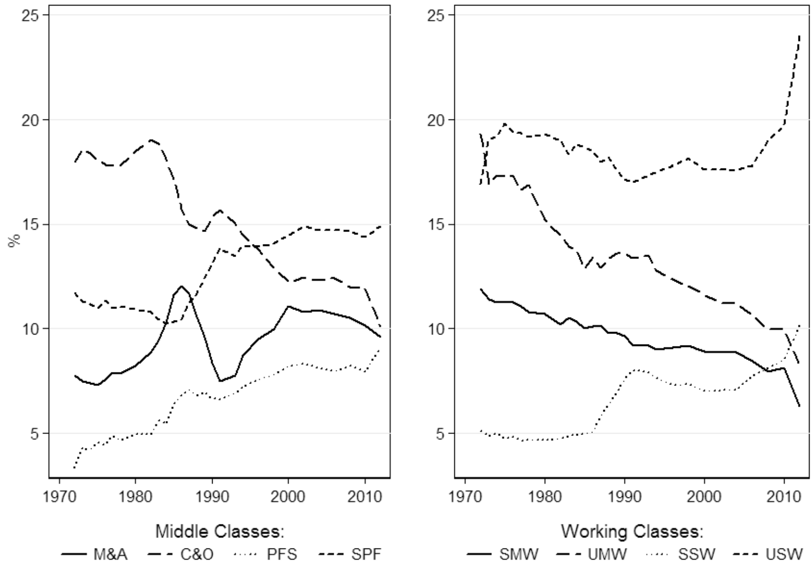


Note: GSS 1972-2012 (N=27,176) and Zumabus 1976-1979 (N= 3,980) and Allbus 1980-2012 (N=22,884). Full-time employed aged 18 to 64 years old. All estimates weighted. Other classes comprise the petty bourgeoisie (PB) and farmers (FA).

More interesting is of course the change of the occupational class distribution in more detail. While famers and petite bourgeoisie are ignored for the moment to concentrate on employees part-time employed are included to fully capture the change in the occupational landscape and the rise of atypical employment relations. Figures 16 and 17 depict the evolution of employee classes separated by the vertical level, i.e. for middle classes (left graph) and working classes (right graph), in both countries. For the ease of the reader and to focus on the trend, we smoothed the graphs by replacing all but the first and the last data points with the simple average of the surrounding data points (up to five years). Overall, the middle classes in the United States expanded considerably since 1972. While managers and administrators at the top of the industrial bureaucratic hierarchy increased overall only modestly – their share increased from 8% in 1972 to 10% in 2012 – their relative size fluctuated most strongly. The increase of managerial positions over the 1970s and 1980s and the following decline over the 1990s has also been found by Wodtke[54] (forthcoming) in a recent analysis of the American class structure using a new Marxist class scheme (note that the time axis is somewhat shifted in the graph because of the smoothing function employed). Goldstein (2012) argues that this trend is due to two developments. Initially, firms tried to reduce labor costs and engaged in mass layoffs. In a second phase starting in the mid-1980s, however, firms embraced shareholder value strategies and lean production models which are highly dependent on neo-Taylorist direct control mechanisms. Consequently, the number of managers rose again. This explanation fits well with the shown trend but must be expanded by the decline since the mid-2000s most likely due to repeated layoffs in the aftermath of the Great Recession. Their immediate subordinates, clerks and officers, decreased in size from initially 18% to barely 10% of the working individuals. In contrast, post-industrial middle classes expanded considerably over the observation period. Professionals tripled their share from 3% in 1972 to 9% in 2012. Over the same period, semi-professionals grew moderately from 12% to 15%. Although the transformation was quite pronounced, the middle classes increased their share only minimally from 41% to 44%. If we exclude the somewhat ambiguous lower middle class positions of office workers, the upgrading of the American occupational structure becomes even more visible. Such defined middle and upper-middle classes increased their share from 23% to 34% of the working population.

[54] Wodtke finds overall little change over the last four decades in the American class structure. While the results are not comparable between his four class account (workers, independent producers, managers and proprietors) and the one presented here, his finding of stability over the last four decades in the United States is reassuring.

Figure 16: Relative evolution of IPICS classes over time in the U.S.



Note: GSS 1972-2012 (N=43,915). Employed men and women aged 18 to 64. All estimates weighted. Floating five-year averages. Yearly figures do not add up to 100 because farmers and petty bourgeoisie are not displayed.

Turning to the working classes, a different trend is observable (Figure 16, right graph). In 2012, the share of unskilled manual workers had been reduced by more than half of its 1972 value (from 19% to 9%). Over the same period, unskilled service workers grew from 17% to 24%. A similar trend is discernible among the skilled working classes. Skilled manual workers halved from 12% to 6%, while skilled service workers doubled from 5% to 10%. Consequently, the American working classes shrank moderately from 53% to 48% of the employed population. This transformation is characterized by two trends. Until the mid-1980s the working classes unambiguously shrank. From the early 1990s onwards, however, service occupations increased considerably. While the former indicates an upgrading of the occupational structure, the latter period is characterized by routinization (Autor et al., 2003), i.e. a decline of routine positions and a concurrent increase of non-routine (low-grade) occupations. Interestingly, this trend towards polarization of the class structure is even more pronounced if we restrict the sample to full-time employed. While the trends with regard to the vanishing manual classes and increasing unskilled service workers remain the same, the counter-trend of skilled service workers is not recognizable. Thus, the horizontal transformation went along with a moderate de-qualification because the decline of full-time skilled manual workers was only partially countered by increasing shares of full-time skilled service workers.

Figure 17: Relative evolution of IPICS classes over time in Germany

Note: Zumabus 1976-1979 and Allbus 1980-2012 (N= 31,560). Employed men and women aged 18 to 64. All estimates weighted. Floating five-year averages.

An overall very similar occupational-structural change is also observable in Germany between 1976 and 2012 (Figure 17, left graph). Managers and administrators grew only slightly from 6% to 8%, whereas clerks and officers shrank markedly from 21% to 14%. Professionals and semi-professionals increased both their shares by five percentage points from initially 8% and 7% to 13% and 12%. In total, the middle classes grew over the last four decades from 42% to 47% or, excluding clerks and officers, from 21% to 33%. While the trends are similar across countries regarding the middle classes, they diverge among the working classes.

In Germany, unskilled manual and service workers' shares of gainfully employed individuals remained rather stable, decreasing only slightly from 8% and 10% in 1976 to 6% and 9% in 2012 (Figure 17, right graph). In contrast, skilled manual workers declined considerable from initially 24% to 19%. Those positions were only partly replaced by similarly skilled service positions growing from 8% to 10%. Studying the sub-periods, it becomes evident that skilled service workers became more prevalent over the 1990s while unskilled service workers shrank over the 1980s and 1990s and only expanded from the early 2000s onwards. Once part-timers are excluded, we observe stagnation with regard to unskilled manual positions but contraction of unskilled and skilled service occupations. Thus, the German occupational structure is rather characterized by occupational upgrading than polarization. Overall, the working classes decreased from 56% to 46% between 1976 and 2012.

Summing up, similar developments of the class structures are observable in the U.S. and Germany. First, the middle classes in both countries grew considerably, especially if the rank-and-file office workers are excluded. At the same time, the working classes decreased considerably. This upgrading was accompanied by a horizontal shift of the occupational structure from industrial to post-industrial positions. A similar transformation has been described by Oesch (2006b, 2013) for Germany and Wright and Dwyer (2003) for the United States. While low-quality jobs declined and high-quality jobs increased until the 1990s, later periods were characterized by job growth in both low- and high class post-industrial occupations. Therefore, our findings on the occupational structural change based on the IPCIS classes largely confirm other results based on income, education or other class schemes.

Outline of the following empirical analyses of social mobility

In the following two chapters, mobility experiences in Germany (Ch. 8) and the United States (Ch. 9) are studied in detail with regard to the whole population and where possible with regard to subgroups. In the beginning of each chapter, the analysis sample is described in order to understand the population whose mobility trajectories are studied (Ch. 8.1 and Ch. 9.1). In the following sections (Ch. 8.2 and Ch. 9.2), the overall mobility pattern is described to understand how mobility flows relate the IPICS classes with each other. Each class is studied in terms of class recruitment and mobility flows. Then, the change in the mobility flows across birth cohorts is studied in some detail for different subgroups (Ch. 8.3 and Ch. 9.3). While it would have been desirable to study minorities in Germany similar to how we study minorities in the U.S., it was impossible due to the low coverage of migrants in the employed surveys. While most of the aforementioned analyses focus on vertical mobility flows, the final sections of the following chapters (Ch. 8.4 and Ch. 9.4) focus on the relationship between post-industrialization and intergenerational mobility, i.e. the relationship between structural change and absolute mobility. Each of the country chapters ends with a brief summary of the findings (Ch. 8.5 and Ch. 9.5).

The second part of the empirical analysis changes the focus from the experienced mobility patterns to the underlying openness of the two societies. After a general introduction and the development of a model of social fluidity (Ch. 10), each of the countries will again be studied in independent chapters (Ch. 11 and Ch. 12). Initially, the (mostly) theoretically derived model of social fluidity will be tested against the data and the different barriers and channels promoting and limiting mobility chances will be described (Ch. 11.1 and Ch. 12.1). In a next step, the IPICS scheme is tested against the EGP scheme in order to demonstrate that it provides insight into the mobility table, which is not exhaustively captured by the mostly vertical EGP scheme alone (Ch. 11.2 and Ch. 12.2). The respective next sections are dedicated to the analysis of change of social fluidity. While the analysis for the respective national populations as a whole is the main aim, subgroups by region and, in the U.S., by ancestry will be studied in more detail where possible (Ch. 11.3 and Ch. 12.3). A summary closes each chapter (Ch. 11.4 and Ch. 12.4) and the results will be compared and enriched in a final conclusions chapter (Ch. 13).

8 Absolute Mobility in Germany over the 20th century

Before the analysis of social mobility in Germany commences, the utilized sample will be discussed in some detail to give the reader an overview of the studied population. Table 26 displays selected characteristics of the German sample for each cohort and, in the last column, for the full sample. The whole sample consists of 75,625 individuals, of whom 45% are women, 22% lived in East Germany at the time of the interview and around 10% were born outside Germany. Sampled individuals are born on average in 1952, nearly in the middle of the seven cohorts studied. While around one-third of the sample is obtained from each of the SOEP and the Allbus surveys, less than 10% are taken from the GLHS and Zumabus and around 15% are interviewees from the NEPS.

The full sample is divided into seven birth cohorts. Each birth cohort covers ten consecutive birth years, with the average year of birth lying in the middle of the range of birth years. The first cohort 1915-1924 comprises 3,098 individuals, while the second cohort covering birth years 1925-1934 is comprised of 6,176 respondents. The following cohorts are comprised of 12,871 (1935-1944), 18,375 (1945-1954), 20,393 (1955-1964), 10,983 (1965-1974) individuals, and the last cohort born 1975-1984 contains 3,729 individuals. Sampled individuals are on average 46 years old when they are interviewed, with age at the time of the interview ranging in general between 30 and 64 years. Only in the first cohort has the upper bound been extended to age 70 to allow for the inclusion of the German Life History Study (GLHS) birth cohorts 1919 to 1921, who were all older than 64 at the time of the interview. Additionally, the few interviewees that were born between 1912 and 1915 are also included in order to have more observations for the oldest cohort. Survey years vary between 1976 and 2012. While the data of most cohorts was collected in two or three decades, the data of the first and the last cohorts has been collected in roughly one decade. The youngest cohort born around 1980 has been interviewed only in the seven years from 2006 to 2012. Thus, it is likely that effects differ more strongly in this cohort because period effects are not averaged out through multiple observations over several decades, as is the case in the other cohorts. Where effects are likely to be driven by either the young age of the respondents in this cohort or the limited observation window, sensitivity checks are

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performed on six cohorts collapsing the last with the next to last cohort covering birth years 1965 through 1984. In total, birth cohorts cover more than two-thirds of the 20th century with individuals born between 1912 and 1984.

Table 26: Characteristics of the German analysis sample

		1915-1924	*1925-1934*	*1935-1944*	*1945-1954*	*1955-1964*	*1965-1974*	*1975-1984*	*Full Sample*
Age	Min.	52	42	32	30	30	30	30	30
	Mean	62.9	54.0	48.4	46.4	43.6	39.5	33.4	45.6
	Max.	70	64	64	64	59	49	39	70
Survey year	Min.	1976	1976	1976	1976	1984	1994	2006	1976
	Mean	1983	1984	1988	1996	2002	2007	2010	1997
	Max.	1988	1998	2008	2012	2012	2012	2012	2012
Year of birth	Min.	1912	1925	1935	1945	1955	1965	1975	1912
	Mean	1921	1930	1940	1950	1959	1969	1979	1952
	Max.	1924	1934	1944	1954	1964	1974	1984	1984
Source (in %)	SOEP	5.3	24.2	33.4	36.9	35.4	39.4	31.8	33.7
	Allbus	10.8	27.1	37.9	38.4	34.4	30.0	17.4	32.9
	Zuma-bus[1]	39.4	28.8	19.2	5.3	0.0	0.0	0.0	8.5
	NEPS	0.0	0.0	0.0	10.9	21.4	30.6	50.8	15.4
	GLHS	44.5	19.9	9.6	8.5	8.8	0.0	0.0	9.5
Sample (in %)	Women	47.7	36.4	39.9	43.9	47.7	47.8	47.7	44.6
	East G.	0.0	15.3	21.1	24.6	27.4	21.4	19.8	22.3
	Migrant	1.9	7.3	10.9	9.8	8.8	11.4	14.4	9.6
	Obs.	3,098	6,176	12,871	18,375	20,393	10,983	3,729	75,625

Note: Compiled dataset (refer to Ch. 6 for more information); 1Zumabus data includes PiBRD and WLF surveys.

The cohorts comprise information from seven different surveys (refer to Ch. 6 for more information on the different data sets). While the oldest cohorts comprise mostly respondents from either the ZUMA surveys or the GLHS, the middle cohorts are mostly populated by interviewees from the Allbus and SOEP surveys, and the youngest cohort is comprised of nearly exclusively NEPS and SOEP respondents. We observe some variation of socio-demographic characteristics across cohorts. The share of women ranges between 36% and 48% across cohorts and is lowest in the cohorts born between 1925 and 1944. The underrepresentation of women results directly from the decision to exclude non-employed individuals from the analysis.[55] According to the OECD's Labor Force Survey, the employment rate of German women aged 15 to 64 increased between 1976 and 2012 from 47.4% to 68.1%. Even though the data used in this study was collected from the mid-1970s onwards, the variation in the share of (employed) women is likely to result from the conditions at labor market entry of the respective cohorts. Arguably, labor market participation of women in the second and third cohort is low because they entered the labor market in the 1950s and 1960s, a time in which government policies tried to prevent women from working whenever possible (Moeller, 1997). The traditional gender stereotypes which relegated many women, especially after childbirth, primarily to housework and family reproduction might have deterred women of these cohorts from returning to work (Drobnič et al., 1999). While no individual from the oldest cohort lived in East Germany at the time of the interview, only 1.9% of the sample immigrated. Both shares increase considerably across cohorts. While the former is highest among Germans born between 1955 and 1964 (27%), the share of migrants is particularly high in the youngest cohort born around 1980 (14%).

8.1 Changing distributions of education, origin and social class

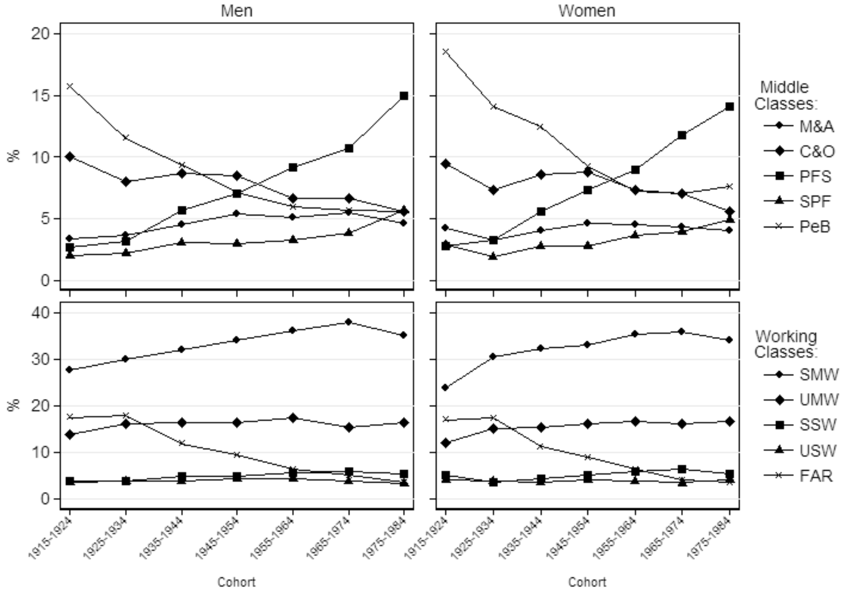
Before intergenerational mobility can be studied, it is useful to understand the change in the marginal distributions which force individuals to be mobile. Figure 18 displays the origin class distribution across the seven cohorts for men (left panel) and women (right panel), further differentiated between middle and working classes. Seemingly, the selection of women into the labor market in this sample is not class origin sensitive. The distribution of origin classes is very similar across gender, with differences most likely resulting from the selection bias due to the exclusion of non-working Germans. Comparing the origin distributions of men and women, the dissimilarity index[56] ranges between 3% and 6%, with average

[55] While it certainly would be desirable to study social mobility of all individuals, and the chosen design purposefully excludes individuals who are, deliberately or involuntarily, already excluded from the labor market, alternative designs are hardly commensurable with the chosen social class approach. Whether we speak of non-employed women or unemployed men, non-working individuals are too heterogeneous a group to be included as a single location. In fact, it is hardly convincing to speak here of *one* class location because most non-employed individuals still obtain their social position from their relation to the labor market. This relation, however, is indirect because it is mediated either through relatives or the individual employment biography. Using education instead of occupations as proposed by Beller (2009) is not an option because it mingles class and educational attainment and transmission processes.

[56] The dissimilarity index is defined as half the sum of the absolute differences between the distributions of two groups (Duncan & Duncan, 1955; Agresti, 2007, p. 219). $DI = \frac{1}{2}\sum(|\frac{M_c}{N_M} - \frac{W_c}{N_W}|)$, with $\frac{W_c}{N_W}$ and $\frac{M_c}{N_M}$ equaling the number of women or men observed in class c (W_c, M_c) relative to all men or women

(across the sample) differences of only 2.7%. Hence, the changes of the German origin class distribution can be described for both genders in tandem without brushing over large differences.

Figure 18: *Origin class distribution of German men and women by cohort*



Note: Compiled dataset (refer to Ch. 6 for more information) with N=75,625.

In the middle classes (top panel), origin class distributions across cohorts moderately upgraded across cohorts through the expansion of industrial and post-industrial classes at the expense of self-employed inside and outside agriculture. Around 5% of individuals originate in the managerial class with little change over cohorts. The share of individuals growing up with clerical origins decreased from 10% of men and 9% of women in the first cohort to 5% and 6% respectively in the last cohort. In contrast, individuals of either gender became more likely to have grown

(N_W, N_M). If the DI equals 0 the compared distributions are the same. The nearer the DI is to one the more different the two distributions are. Multiplied by one hundred, the dissimilarity index represents the proportion of observations which have to be reassigned to other categories in order to obtain the same distribution.

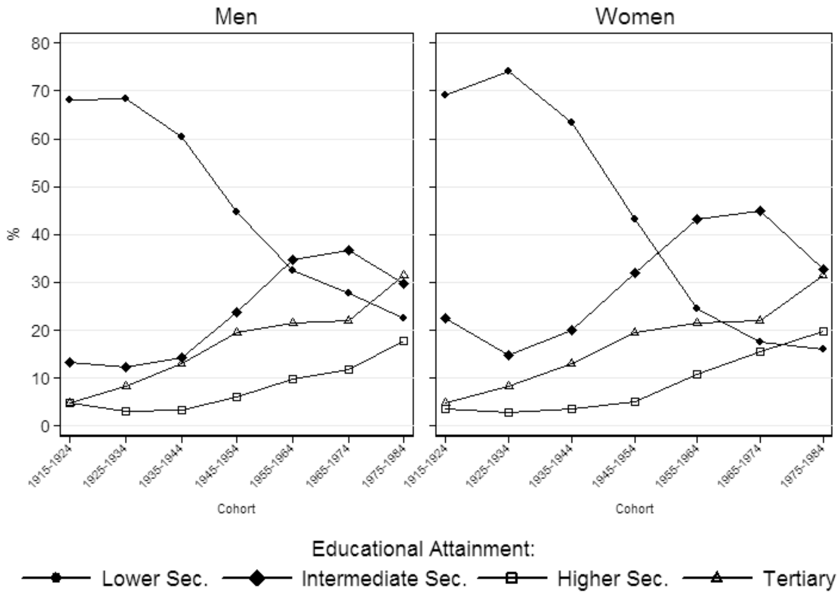
up in the post-industrial class positions. The share of children raised in professional class origins rose from below 3% in the first cohort to below 15%, whereas the share of women and men with semi-professional fathers increased from initially both 3% to 5% and 6% in the last cohort. The largest observable cohort change is the continued decrease of petty bourgeoisie origins. While 16% of men and 19% of women born in the first decades of the 20th century grew up in households of the self-employed, only 6% of men and 8% of women born around the 1980s had petty Bourgeois fathers. The well-studied increase in (small) self-employment since the 1980s is not yet observable in the origin distributions (Arum & Müller, 2004; Lohmann & Luber, 2004).

We now turn to the change among the working class and agricultural origins (bottom panel). The share of men and women growing up in skilled manual classes increased from 28% of men and 24% of women in the first cohort to 35% and 34% in the last cohort. At the same time, the share of unskilled manual origins grew from 14% and 12% to below 17% of men and women born around the 1980s. In contrast, we find little change with regard to the shares of individuals growing up in families headed by service workers. The share of sons of skilled service workers increased moderately from 4% to 6%, whereas the share of daughters remained mostly stable around 5%. Similarly, the share of unskilled service worker origins remained with 4% stable across cohorts. Finally, the decline of agricultural production resulted in decreasing farm backgrounds with the share of individuals growing up on farms falling from more than 17% to below 4% of both men and women born in the last cohort.

Summing up, I find the characteristic changes resulting from urbanization, industrialization and post-industrialization, which were also discernible for the whole population once one keeps in mind that origins are on average 46 years behind the actual trend (ref. to Ch. 7.1). While the contraction of the working classes and the expansion of the self-employed did not yet affect class origins, we clearly see the surge of industrial workers at the expense of independent craft workers and self-employed entrepreneurs across cohorts.

Why does the origin class distribution not resemble the overall occupational distribution more strongly? While the time warp between generations is an important reason, one should not forget that origins are not representative of any earlier generation. As Duncan forcefully reminded us, "the transformation that occurs via a *succession of cohorts* cannot, for basic demographic reasons, be equated to the product of a *procession of 'generations'*" (Duncan, 1966, p. 59). The 'basic demographic reasons' are, among others, immigration, differential mortality and reproduction behavior, all of which might affect the procession of generations on the labor market. In other words, the distribution of father's class displayed in Figure 20 is conditional on having a child that is alive and working at the time of the survey – attributes which are very differently associated with the occupational structure at any given point in the past. Thus, it is useful to think of class origins in terms of individual attributes indicating affordable resources, provide a reference frame for mobility strategies or indicate any other cultural disposition gained in socialization processes (Hertel & Groh-Samberg, 2014).

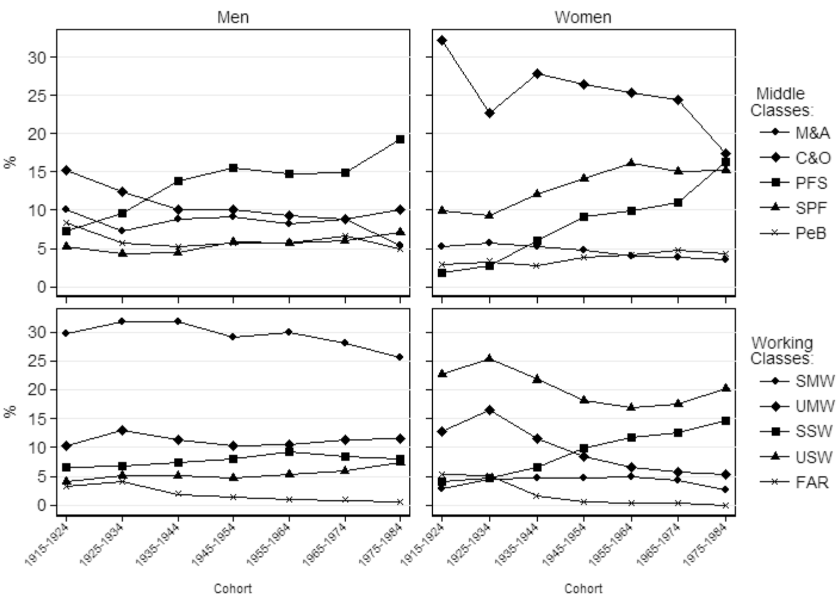
Figure 19: Educational distribution of German men and women by cohort



Note: Compiled dataset (refer to Ch. 6 for more information) with N=75,625. See surrounding text for explanation of abbreviations.

Figure 19 provides information about the extent to which the partial upgrade of origins is accompanied by increasing educational attainment across cohorts. Displayed is the educational distribution in each cohort among men (left panel) and women (right panel). Changes between cohorts among men and women are again similar. Nearly 70% of men and women born in the first cohort have maximally attended a lower secondary school (*Hauptschule/Volksschule*). Across cohorts, this share declined to 16% of women and 23% of men in the youngest cohort. At the same time, the share of higher secondary (*Abitur*) or tertiary degree (bachelor's or master's degrees.) holders increased from 4% and 5% to 20% and 31% of women and from 5% and 14% to 18% and 30% of men in the most recent cohort. Similarly, intermediate degrees (*Realschule/Polytechnische Oberschule (P.O.S.*) became more prevalent across cohorts. The dramatic increase between the third and the following cohorts is not only due to educational expansion in West Germany, but mostly driven by East Germans in the sample. The German Democratic Republic's equivalent to West Germany's higher secondary school, the *Erweiterte Oberschule*, became more selective after the 1970s in order to effectively limit costly university enrollment (Sieben et al., 2001). This lead to a diversion of students to the intermediate P.O.S. vocational tracks and deliberately constrained the available number of higher secondary education placements (Fuhr, 1997). Consequently, we observe a decrease of intermediate secondary school enrollment in the last cohort which finished schooling after unification. In total, we observe two well known trends in educational attainment. First, the general increase of educational attainment resulting from educational expansion. Second, we observe the closing and partial reversion of the achievement gap in educational attainment between men and women.

Figure 20: Destination class distribution of Germans by cohort



Note: Compiled dataset (refer to Ch. 6 for more information) with N=75,625.

Finally, Figure 20 presents the current class distribution in each cohort among men (left panel) and women (right panel) at the time of the interview. Already at first sight, we can note that men and women frequently populate different class positions, a difference that only gradually decreases across the seven cohorts. The largest class among men comprises skilled manual workers, whereas women are most frequently found working as clerks and officers or unskilled service workers. Class attainment changes substantially across cohorts. In the middle classes (upper panel), men are more likely to become professionals – their share rose from 7% in the first to 19% in the last cohort - or semi-professionals (5% to 7%), but increasingly less likely to work in clerical (15% to 10%) or managerial positions (10% to 5%). Similar trends are discernible among women. Their share of professionals (from 2% to 16%) and semi-professionals (10% to 15%) grew even stronger as compared to men. At the same time, however, women in clerical positions became less frequent (32% to 17%) and managerial class positions dropped from 5% to below 4%. The petty bourgeoisie decreased among men from 8% to 5%, whereas the share of women becoming self-employed increased slightly from 3% to 4%. The discordance between the finding of a decline in male self-employment outside of agriculture and the frequently shown reemergence of self-employment (Arum & Müller, 2004) is most likely due to the younger age in the more recent cohorts and the decision to assign professional or managerial self-employment on the basis of their occupations (Lohmann & Luber, 2004).

The working classes (lower panel) are characterized by a remarkable contraction and polarization. Especially the stronghold of the (male) German working classes, the skilled manual workers, shrunk from initially 30% to below 26%. There was little change, however, with regard to men in unskilled manual occupations, which comprised 10% of men in the first and 12% of men in the last cohort. The skilled manual workers are mostly replaced (in the succession of cohort distributions) by men employed in service working classes. While skilled service workers increased slightly from 7% to 8%, the share of unskilled service workers among German men grew considerably from 4% to 7%. A more positive picture is obtained by studying working class women. While the share of female unskilled service workers dropped from 23% to 20% and unskilled manual positions more than halved from 13% to 5%, the share of female skilled manual workers oscillated between 3% and 5% and skilled service workers soared from initially 4% to 14%. Thus, working class attainment of women is characterized by a considerable upgrading across cohorts, whereas the loss of skilled manual positions among men is only partially amended by an increase in similarly skilled service positions and exacerbated by the increase of unskilled service workers. Finally, farmers became nearly extinct among both men and women across cohorts.

In total, the class structure of men and women changed considerably across cohorts. Three trends are worthy of repetition. First, men and women experienced an upgrading of their respective class structures, especially in the growing post-industrial middle class segment, whereas the (manual) working classes and the (clerical) rank and file office workforce contracted. Second, at the same time, the change in working class positions differed between men and women. While the former suffer a loss in skilled positions, meaning a general upgrading of the male occupational structure and some degree of polarization through the increase of unskilled service positions, the latter experience a gradual replacement of unskilled occupations with skilled occupations resulting in an upgrading of the occupational structure. Both patterns are remarkably similar to what has been shown above for all Germans aged 18 to 64 (ref Ch. 7.5). Third, the class structures converged between men and women over time. Comparing the differences of destination classes between both genders across cohorts, we find that the dissimilarity index, ranging between zero (no segregation) and one (complete segregation), declined from 45% in the first cohort to 35% in the last cohort. This development is mostly driven by the expansion of post-industrial middle classes and the contraction of clerical and industrial working classes. While the former are mixed class locations, the latter are comprised of clearly gendered positions, which were to a large extent populated either by women or by men (compare Ch. 7.1).

The overall stability of the origin distribution and the gradual upgrading of the destination class distributions, as well as rising educational attainment, point toward potentially growing intergenerational mobility across cohorts. In the following study of absolute mobility patterns, we will first obtain a baseline mobility pattern for all cohorts together by studying the recruitment and mobility outflow of each class, before comparing mobility patterns between cohorts and, finally, subpopulations.

8.2 Aggregated mobility patterns

Before I commence with the analyses, a brief explanation for why I devote such a substantial part in both country chapters to the study of absolute mobility may be in place, in particular if the former is little more than driven by the structural change across generations. The detailed interest in the study of absolute mobility is twofold. First, absolute mobility flows are what people experience in their daily lives. The expression that individuals "live in the margin" means nothing else than that they – we – rarely perceive our own careers and trajectories from our social origins as a relative, or even collective, trajectory shared by thousands of insignificant others growing up in objectively comparable, but subjectively individual, situations. Intergenerational mobility is rather conceived of as an individual venture that depends as much on luck and timing, peers and family as it does on effort, deferment and, sometimes, in the face of failure, resignation. While such a narration may be psychological healthy, and in fact necessary to face the loss of the myriad possibilities (Bourdieu, 1984), it nevertheless results in ignorance towards the multitude of others who started in comparable situations and experienced similar trajectories on their way to their current social position. This general resemblance of experiences, of course, is hardly located in individual preferences but in the stratification of resources and the institutionalization of the life course that is in the fabricated opportunity structure that allows us to choose where to venture, i.e., if, and only if, we fit in the selection schema – a more or less arbitrary, but always purposeful, combination of age, class, race, behavior, skills and all the other objective and, at the same time, subjective characteristics which the chosen ones are required to possess in order to continue the journey on the 'freely' chosen path. Thus, an interest in absolute mobility flows is an interest not only in the experiences of the subjects of mobility studies, but also in the outcome of the continuous selection processes that shape the social structure and govern stratification.

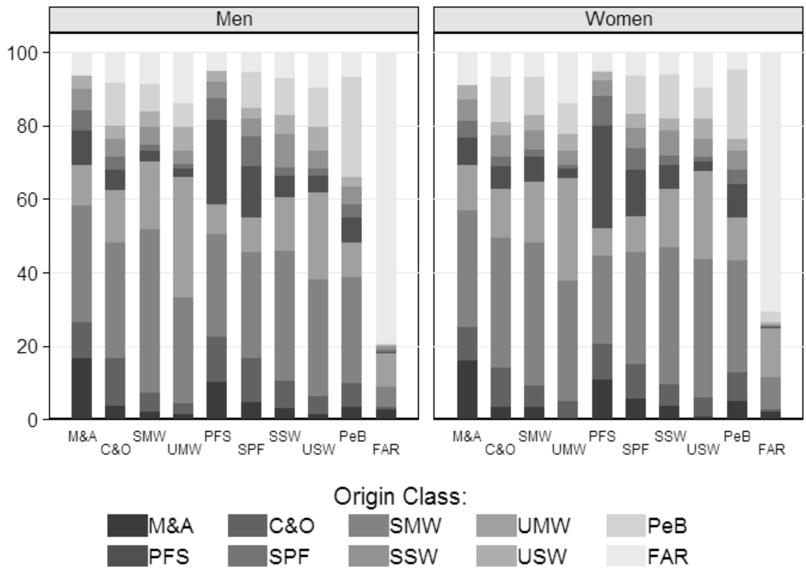
Second, because absolute mobility trajectories are subject to so many social selection processes, they are intimately related to legitimacy of the stratification order (Sorokin, 1927 [1959]). A constant shuffle of positions across generations maybe the result from 'real' equality of opportunity, continuous circulation of positions create insecurity and the sensation of injustice. But where inequality is perceived as unjust, collective action can arise and may result in a new stratification order (Thompson, 1980). While history is full of such revolutionary moments, it is also full of moments in which collective action could have erupted in the face of blatant inequality, but did not due to the absence of an understanding of that inequality being unjust. One of the main reasons why inequality may be acceptable is the experience of individual mobility. Where mobility is perceived to exist, even if it did not because all boats are lifted to the same degree, outrage at the prevailing conditions is not only unlikely, but absurd to expect. Thus, an interest in absolute mobility experiences is also an interest in the question of whether collective outrage about the current stratification order is likely to come from those who not only have no chance, but also experience no chance.

In various senses, post-industrialization is an exclusionary phenomenon of the latter half of the 20th century as much as urbanization and industrialization were exclusionary phenomena of the 19th and 20th centuries. The massive disruptions that pushed legions of impoverished agricultural workers and small farm holders into the growing urban centers and evolving factory systems and, some generations later, pulled workers from the shop floor to offices and their children from elementary schools to universities, were all collective phenomena which shaped the mobility experiences of generations. For various decades, the structural change coincided with increasing rates of upward mobility. New inequalities were therefore easier to accept because a significant portion of people were upwardly mobile. By establishing the holy spirit of global competition through excessive deregulation and polarization policies, however, market insecurities, growing poverty and inequality became by the end of the 20th century once more free riders of the socio-political development. The question is whether this new regime of social, economic and political organization holds its inherent promise of individual success and development, or whether it falls short, making collective action once more possible after the 'golden age of capitalism' is long over.

Both arguments in favor of the study of absolute mobility are pointing, finally, to the question to what extent IPICS classes are real phenomena which also exist outside the analyst's imagination and can inform us about collective action. As Goldthorpe argues, class interests come into existence where "classes acquire a demographic identity, that is, become identifiable as collectivities through the continuity with which individuals and families retain their class positions over time" (Goldthorpe, 1982, p. 171f.). Thus, the formation of interests and the possibility for collective action depends on the inter-generational stability of social class positions. Given that at any time a majority of people is mobile, the question of immobility may be important for the formation of class interests but the question of interest formation and mobility is may be of greater consequence. Where upward mobility is frequent because higher classes are growing, the interest in preservation of the class order is arguably particularly pronounced. If, however, upward mobility rates stagnate or fall and downward mobility rates increase, preservation may increasingly be replaced by dissatisfaction and resistance. Whether or not collective action arises, of course, also depends on the degree to which downwardly mobile and immobile individuals are conscious about their shared class position or whether such a development leads to inner fragmentations of classes. However, far more than providing just another validity test, the analysis of absolute intergenerational mobility may inform us about at least one possible reason of the success of new social movements – e.g., occupy in the U.S. or *podemos* in Spain: frustration about mobility prospects relative to the experiences of earlier generations (Castells, 2012).

While I do not relate the study of objective mobility with subjective satisfaction with the current order, I do think that a detailed description must precede any attempts to do so. To establish an overview about absolute mobility patterns on basis of the IPICS scheme, I initially study recruitment in, and outflow out of, each class for the whole sample, i.e. the 'average' mobility pattern. The inflow perspective is taken by studying the column percentages in the collapsed mobility table. The respective percentages are displayed in simple bar charts for men and women in Figure 21. The most obvious (and well known) finding is that for both men and women, farmers experience the highest degrees of self-recruitment (Erikson & Goldthorpe, 1992). Around 80% of male farmers and 71% of female farmers in the German sample are children of peasants. Of course, this high rate of self-recruitment is driven by the necessity of owning specific capital, land and machines, to enter this class and may be due to the high transaction costs involved in selling inherited livestock, farm land and equipment (Ishida et al., 1995). Unsurprisingly, men and women in all other classes are most likely to be the offspring of skilled manual workers, which were, as we have seen, the single largest origin class across cohorts. Furthermore, I find that self-recruitment in most classes is the second most likely inflow channel. Around 17% of male managers and administrators, 13% of clerks and officers, 44% of skilled manual workers and 33% of unskilled manual workers, 23% of professionals and 27% of the petty bourgeoisie followed their fathers' examples and inherited the class position.

Figure 21: Inflow mobility of German men and women

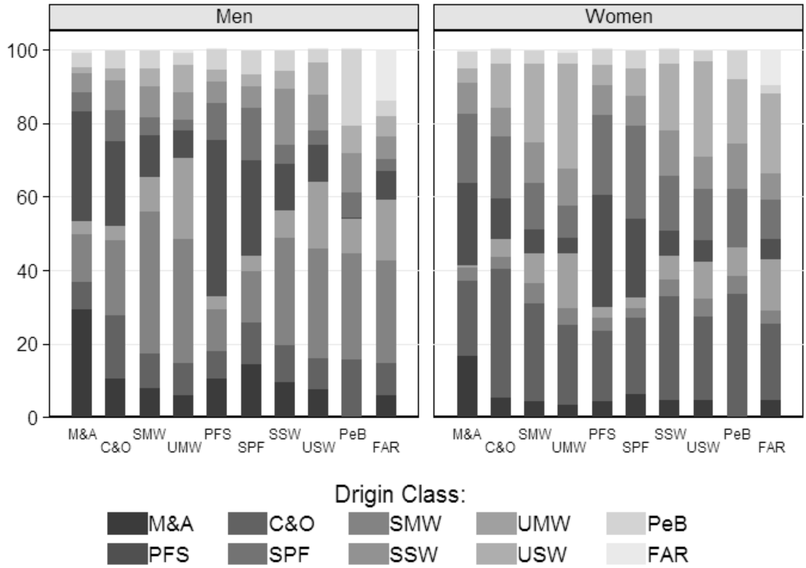


Note: Compiled dataset (refer to Ch. 6 for more information); Men: N= 41,928, Women: N= 33,697.

Male reproduction is considerably lower in the remaining post-industrial classes, which are dominated by women. Only 8% of semi-professionals, 9% of skilled service workers and 7% of unskilled service workers were born in similar class conditions. In the latter two cases, around 15% and 24% of fathers were unskilled and 35% and 32% were skilled manual workers instead. Due to the gendered class structure, self-recruitment is overall less frequent among women. In fact, the dissimilarity index comparing the origin distribution with the destination distribution equals .19 among men but .49 among women. Thus, 49% of women, but only 19% of men, would have to enter other classes in order to obtain similar origin and destination class distributions. The differences in class attainment strongly affect the rate of self-recruitment among women. For example, only 11% of female clerks and officers, 5% of unskilled and 7% of skilled service workers have had fathers that were in the same class location. Given that these positions are predominantly filled with women, this is hardly unexpected. Nevertheless, there is some evidence for self-recruitment in some classes. Still 28% of female professionals, 15% of managers, 19% of self-employed and 39% of skilled manual workers enter into the same class positions that their fathers attained, in spite of the generally strong gender differences within IPICS classes. It is likely that this pattern is driven by self-selection and class-specific opportunities that allow women to choose occupations which they otherwise (can) hardly enter.

If we collapse middle (M&A, C&O, PFS, SPF) and working (SMW, UMW, SSW, USW) classes and independent (PeB, FAR) positions into three large blocks, we obtain high degrees of average "situs" reproduction. Around 41% of men and 33% of women within the middle classes had fathers in similar locations, whereas about 70% of both male and female blue, pink and white collar workers are children of working class men. Even if certain class recruitment is not especially high due to gender barriers, we do see that vertical differences dominate recruitment in the sense that most individuals originate from class positions that are vertically similar to the ones they entered themselves. Thus, the difference between current class and social origin is frequently only a matter of short-range vertical or horizontal mobility.

Figure 22: Outflow mobility of German men and women



Note: Compiled dataset (refer to Ch. 6 for more information); Men: N=39,558, Women: N=31,123.

The average outflow mobility rates are displayed in Figure 22. Outflow rates are obtained by studying the row percentages derived from a mobility table. They inform about the typical mobility channels from any given class origin. As usual with class mobility, we find comparatively high rates of immobility on the diagonal. However, the propensity to immobility depends again on whether we compare the positions of sons or daughters to their father's class. Around 30% of the sons of managers, but only 17% of managers' daughters, attain a managerial class position. In contrast, only 17% of sons of clerks and officers, but 35% of daughters move into clerical occupations. Thus, male immobility is high among the sons of skilled manual workers (39%), unskilled manual workers (22%), professionals (43%) and the petty bourgeoisie (21%). In contrast, female immobility is most common among daughters of professionals (31%), semi-professionals (25%) and unskilled service workers (26%).

Because a large class offers more opportunities than a small class for occupational attainment, mobility patterns are also driven by the (gender-specific) clustering of occupations in some classes. Whatever background, men are always particularly likely to enter into skilled manual positions, whereas women are independent of their origin likely to enter the clerical class. At the same time, mobility patterns are clearly vertically structured. The higher the class background, the higher the shares of men and women that enter the professional or the managerial class. In contrast, mobility into unskilled pink or blue collar occupations is more likely the lower the class origin of an individual. Only 6% of men and 3% of women growing up in the unskilled manual class, and 8% of sons and 5% of daughters of fathers in unskilled service positions, enter managerial positions. The respective shares entering the professional class are somewhat higher with 7% and 10% and 4% and 6%. Mobility barriers not only limited upward mobility but also prevent downward mobility between the highest and the lowest class positions. Only 3% of the sons of managerial and 4% of the sons of professional fathers enter unskilled manual positions and even fewer become unskilled service workers. There is no great observable gender difference with regard to this top-bottom barrier. The respective shares of daughters from high middle classes entering unskilled manual positions are 1% and 3% respectively, whereas 4% and 6% work in unskilled pink collar positions.

Finally, there are particular channels between certain origin and destination class positions. While considerable shares of sons (30%) and daughters (22%) of managerial fathers were horizontally mobile and enter the professional class, only 11% of sons and 4% of daughters of professional parents become managers or administrators. Similar pronounced outflows link semi-professional origins with professional class attainment. 26% of sons and 21% of daughters achieve such short-range upward mobility, most likely due to the relative social proximity of professionals and semi-professionals. Additionally, the children of semi-professionals are also more likely to enter managerial classes than all other non-managerial classes (men: 15%; women: 6%), pointing towards a rather strong drive for upward mobility among parents and children in semi-professional classes. Thus, the expansion of the post-industrial middle classes was accompanied by pronounced lateral mobility that secured status maintenance and opened up mobility opportunities for lower post-industrial positions.

Summing up, we find various interesting cases of class reproduction and class-specific mobility patterns by studying the inflow and outflow mobility patterns in Germany. While most individuals enter into classes that are similar or closely related to the one in which they grew up, upward and downward mobility is limited by barriers separating high and low class positions in both hierarchies. With the exception of clerks and officers on the one hand and professionals on the other, mobility patterns are gendered so that men are more likely to enter into technical-organizational positions, whereas women are more likely enter into interpersonal classes (Müller & Pollak, 2004; Pollak, 2010). While we do find strong horizontal channels between managerial and professional classes, horizontal differences elsewhere in the mobility table seem to be mostly gender driven. In Germany at least, mobility patterns are more related to vertical than horizontal barriers once gender differences between origin and destination classes are taken into account.

8.3 Changing aggregated absolute mobility patterns

Average mobility flows are subject to the molding forces of changing educational attainment and occupational opportunities which affect class attainment over time. Therefore, the focus shifts now to the more complex picture of cohort change in absolute mobility patterns. Given that the respective destination by origin by cohort table comprises 700 cells for each gender, the full table is too complex for a clear descriptive analysis. Therefore, mobility flows are assigned to either of four types of experienced mobility trajectory: downward mobility, (vertically neutral) horizontal mobility, social reproduction or upward mobility.

Table 27: Schematic presentation of 4 different mobility trajectories

		Destination									
		Industrial Classes				*Post-industrial Classes*				*Other*	
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR
Origin	M&A	R	D	D	D	H	D	D	D	D	D
	C&O	U	R	D	D	U	H	D	D	H	H
	SMW	U	U	R	D	U	U	H	D	H	H
	UMW	U	U	U	R	U	U	U	H	U	U
	PFS	H	D	D	D	R	D	D	D	D	D
	SPF	U	H	D	D	U	R	D	D	H	H
	SSW	U	U	H	D	U	U	R	D	H	H
	USW	U	U	U	H	U	U	U	R	U	U
	PeB	U	H	H	D	U	H	H	D	R	R
	FAR	U	H	H	D	U	H	H	D	R	R

Notes: D=downward mobility, R=reproduction mobility, H=horizontal mobility, U=upward mobility.

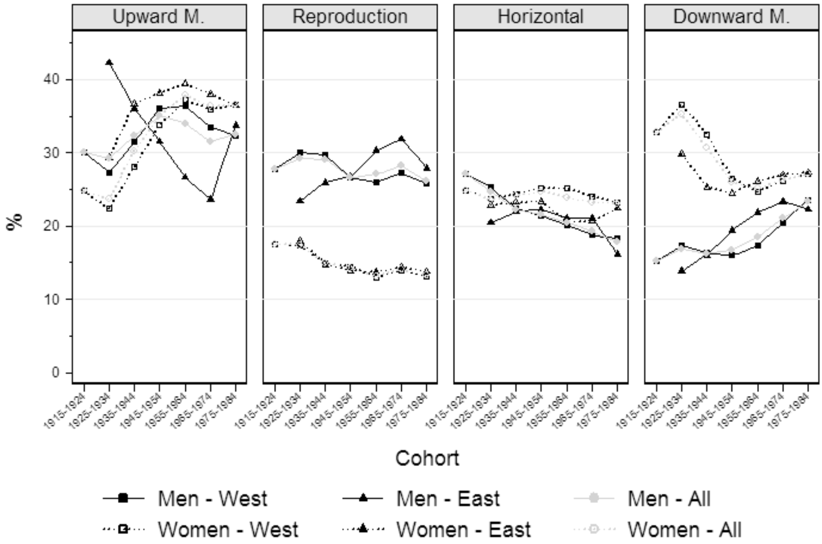
Table 27 displays schematically all combinations of origin and destination classes and the respective mobility trajectory type. Reproduction (R) denotes all cases on the diagonal, i.e., those observations in which origin and destination classes are the same. Mobility patterns are horizontal (H) when individuals moved between industrial and post-industrial class segments but remained on the same vertical position. Individuals who move up or down the social ladder are characterized as upwardly (U) or downwardly (D) mobile. For vertical mobility, I differentiate four levels. Professional and managerial classes are at the top of the class hierarchy, clerical and semi-professional occupations rank second, whereas skilled manual and service classes rank third. Unskilled manual and service classes are the lowest occupational classes. Due to the heterogeneous nature of the independent classes, I consider them as part of the two middle classes so that mobility patterns between these class positions and the four classes on vertical rank two and three are considered horizontal mobility. Finally, I consider mobility between farmers and the petty bourgeoisie as reproduction because both classes are characterized by capital ownership within the independent logic.

The share of individuals within each cohort experiencing one of the four intergenerational trajectories is presented in Figure 23 separately for men and women in East Germany, West Germany and all of Germany. Although East Germans may well be overrepresented in the sample due to the original surveys' sampling designs, aggregated mobility rates for Germany as a whole (circle) are nearly identical to those of West Germans who are numerically predominant. In order to avoid redundancy, we therefore mostly discuss results for men and women living in either East or West Germany and accept the latter to be more or less representative for Germany as a whole. In any case, it is obvious from any graph in Figure 23 that class mobility differs in nearly all cases more strongly by gender (dashed vs. solid lines) than between West (square symbols) and East (triangles) Germans.

The most decisive finding is a decline of upward mobility in the more recent cohorts, indicating a trend towards failed intergenerational reproduction strategies (left graph in Figure 23). The surge in upward mobility rates was most severe for East German men (Hartmann, 1998). While 42% of East German men born between 1925 and 1934 experienced upward mobility, this share drops sharply across cohorts to 24% of men born between 1965 and 1974. Upward mobility flows only increased in the most recent cohort to again 34%. The initial high level of upward mobility in East Germany is generally explained with the more rigorous de-nazification and corresponding replacement of the economic and political elite through preferentially treated children of the working classes in the early post-war years in East Germany (Solga, 1995). The following decline, however, results from the successful educational closure strategies by the new elites limiting educational attainment at the expense of the lower classes from the 1970s onwards (Geißler, 1983). This landslide of upward mobility among East German men is only stopped in the last cohort in which upward mobility is roughly as frequent as among West German men.

In contrast, upward mobility increased constantly among West German men born between 1915 and 1964 from initially 30% to 37%. Over the last two cohorts, however, upward mobility rates declined to 32%. No pronounced decrease of upward mobility is observable among women. However, upward mobility shares were in the first cohorts considerably lower than among men. Only one in four West German women born in the first cohort (and working at the time of the interview) and 22% in the second, but around 30% of East German women born between 1925 and 1934 experienced upward mobility. Across cohorts, women's upward mobility rates grew until the cohort born between 1955 and 1964 to around 37% in West Germany and 40% in East Germany, but remained stable thereafter. In the last cohort, total upward mobility of German women accounted for 37% of all intergenerational trajectories.

Figure 23: Total mobility rates in East and West Germany



Note: Compiled dataset (refer to Ch. 6 for more information). East Germany: Men: N=8,576, Women: N=8,275 and West Germany: Men: N= 33,352, Women: N= 25,422.

There are two types of class immobility. Social reproduction denotes those trajectories in which individuals attain the same class position as their fathers, with the exception of farmers who might also move into the petty bourgeoisie. Horizontal mobility denotes lateral moves between vertically similar classes in the industrial, post-industrial or independent class segments. Regarding class immobility (second graph from the left in Figure 23) in the narrower sense, we observe a modest decline in class reproduction for three out of the four groups studied. While social reproduction among West German men declined modestly from initially 28% to 26% in the last cohort, it grew among men in East Germany from 23% in the first cohort to 28% in the last cohort. In contrast, the share of immobile women declined in East Germany from 18% to 14% and in West Germany from 18% to 13%. Hence, women's level of social reproduction remains clearly below that of men. This is mostly due to the gender difference in class attainment described above (Ch. 7.1). We find a similar trend towards convergence with regard to horizontal reproduction (second graph from the right in Figure 23). Horizontal mobility rates dropped from 21% to 16% among men in East Germany and from 27% to 18% among West German men. Horizontal mobility rates change little among either West or East German women. Horizontal trajectories decreased from around 25% to 23% among West German women and from 23% to 22% among East German women. Thus, both class immobility and upward mobility decreased or stagnated for Germans born after the mid-1950s. The decrease of horizontal mobility rates is mostly due to the contraction of the independent classes. Ignoring the self-employed in agriculture and the petty bourgeoisie, horizontal mobility remained stable among men and increased among women.

Consequently, vertical downward mobility rates changed strongly among all groups. Experiencing initially the highest downward mobility rates, women became considerably less likely to be downwardly mobile across the middle cohorts. After an initial increase from 33% in the first cohort to 37% in the second cohort, downward mobility rates declined among West German women to 25% of women born in the 1950s and stayed stable over the following cohorts. Similarly, downward mobility rates dropped in East Germany from initially 29% to 25% of women born between 1955 and 1964, but increased modestly to 27% over the following two birth cohorts. Although men experienced in general lower levels of downward mobility, the increase across the more recent cohorts was more pronounced. In West Germany, downward mobility rates oscillated in the first four cohorts between 15% and 16%, but increased among men born in the mid-1960s or later to finally 24%. Finally, downward mobility trajectories became constantly more frequent among men in East Germany from initially 14% of those born between 1925 and 1934 to 22% of men born after the mid-1970s. The extremely high downward mobility of (West German) women born around the 1930s was also reported by Mayer (1977) and Müller (1978), who argued that the transition into the labor market was severely hampered due to the lack of vocational training in the first years after World War II (Mayer & Aisenbrey, 2007).

Three of the aforementioned findings warrant repetition and confirm and expand earlier findings on intergenerational mobility flows in Germany based on the EGP scheme by Pollak (2010) and comparable analyses by Mayer and Aisenbrey (2007). First, upward mobility decreased or stalled in the more recent cohorts considerably. Second, class reproduction decreased modestly among men but weakened considerably among women, whereas horizontal mobility decreased constantly among men but remained stable among women. Third, downward mobility increased among those cohorts born after the mid-1950s. Thus, after a half century of increasing or stable upward mobility chances, more recent cohorts suffer severe drawbacks with regard to class attainment. While this finding is dramatic in itself, and East Germans do suffer more deteriorating mobility trajectories, trends are remarkably alike and, in fact, grow more similar between East and West Germany.

The changing quality of vertical mobility patterns in Germany

Before studying inter-segmental mobility patterns, the evolution of vertical mobility experiences in Germany is studied in more detail. The focus lies on mobility trajectories between the highest and lowest classes relative to other moves. For that purpose, I differentiate between long-range and short-range vertical mobility. Long-range mobility comprises upward or downward mobility between professional or managerial positions and unskilled manual or service worker locations. Short-range mobility, on the other hand, comprises all other non-lateral intergenerational trajectories. The quotient of downward to upward mobility incidences among the long- and short-range mobile informs about the trend in mobility flow directions (Table 28). The quotient of long-range to short-range mobility within each of the directions informs about the relative abundance of long-range mobility opportunities (Table 29). In combination, they inform about the change of vertical mobility experienced by Germans over the last century. I do not calculate those measures for the first birth cohort because of low frequencies.

Table 28: Ratio of up- to downward mobility by gender and region

	Men						*Women*					
	West		*East*		*Total*		*West*		*East*		*Total*	
	Long	*Short*	*Long*	*Short*	*Long*	*Short*	*Long*	*Short*	*Long*	*Short*	*Long*	*Short*
1915-1924	-	-	-	-	-	-	-	-	-	-	-	-
1925-1934	6.20	1.49	-	2.79	7.80	1.63	1.20	0.59	-	0.99	1.67	0.66
1935-1944	7.00	1.82	5.38	2.04	6.54	1.86	1.76	0.84	5.00	1.36	2.30	0.95
1945-1954	6.73	2.13	2.04	1.51	4.71	1.97	1.97	1.25	3.00	1.55	2.27	1.33
1955-1964	4.18	2.05	2.31	1.05	3.59	1.73	1.58	1.50	2.00	1.46	1.69	1.49
1965-1974	2.93	1.58	0.70	0.93	2.21	1.42	1.65	1.38	1.00	1.27	1.47	1.35
1975-1984	1.50	1.36	1.22	1.44	1.42	1.38	1.04	1.30	1.67	1.35	1.15	1.31

Note: For total observation numbers refer to Figure 23 and Table 26. Refer to text for explanation of how the numbers are formed.

While the figures for East Germans are rather tentative due to the low incidence of long-range mobility, Table 28 shows clearly that long-range mobility trajectories decreasingly lead from lower to higher positions, although long-range upward mobility was still more frequent in the most recent cohort than long-range downward mobility. Short-range mobility trajectories, on the contrary, did not develop linearly. While the ratio of upward to downward mobility trajectories increased until the first post-war cohort among men and a decade later among women, the last two to three cohorts were characterized by more rapid growth of downward short-range mobility than upwardly directed flows. Interestingly, men and women from East Germany born between 1965 and 1974 experienced the worst ratio of upward to downward mobility incidences of nearly all cohorts. Of course, this is exactly the cohort which was affected most from German unification during their early career phase. The limited working opportunities following the forced de-industrialization in the course of Germany's unification and the devaluation of East German vocational skills and educational credentials limited mobility opportunities compared to West Germans (Mayer & Schulze, 2009). While other cohorts were seemingly too young or too old to suffer considerably from the economic deconstruction of East Germany, men of this cohort experienced more short- and long-range downward than upward mobility.

Table 29: Ratio of long to short-range mobility by gender and region

	Men						*Women*					
	West		*East*		*Total*		*West*		*East*		*Total*	
	UP	*DW*	*UP*	*DW*	*UP*	*DW*	*UP*	*DW*	*UP*	*DW*	*UP*	*DW*
1915-1924	-	-	-	-	-	-	-	-	-	-	-	-
1925-1934	0.07	0.02	0.08	0.02	0.07	0.02	0.05	0.02	0.06	0.07	0.05	0.04
1935-1944	0.08	0.05	0.10	0.02	0.08	0.04	0.04	0.01	0.06	0.02	0.05	0.01
1945-1954	0.10	0.05	0.10	0.06	0.10	0.06	0.04	0.03	0.06	0.06	0.05	0.03
1955-1964	0.10	0.05	0.11	0.11	0.10	0.06	0.05	0.04	0.05	0.06	0.05	0.05
1965-1974	0.11	0.06	0.07	0.10	0.10	0.07	0.05	0.04	0.04	0.03	0.05	0.04
1975-1984	0.10	0.09	0.10	0.13	0.10	0.10	0.07	0.08	0.09	0.13	0.07	0.10

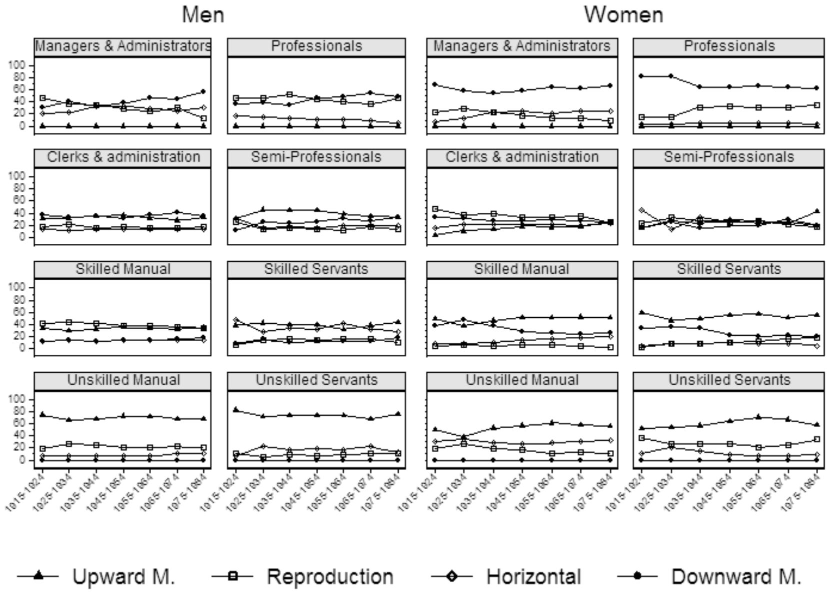
Note: For total observation numbers refer to Figure 23 and Table 26. Refer to text for explanation of how the numbers are formed.

Turning now to the ratio of long-range to short-range mobility within upward and downward mobility flows in Table 29, we find that mobility trajectories among both men and women became less favorable across cohorts. While the ratio of long- to short-range mobility incidences increased with regard to upward mobility among men in the early cohorts and among women in the last cohort, the ratio among men and women from the respective other cohorts are remarkably stable. At the same time, however, long-range downward mobility increased relative to short-range downward trajectories among both men and women. Of course, relative increase of long-range downward mobility among women in the last cohort might result from the younger age of the last cohort, which naturally limits career mobility. The consistent trend among men over the last three cohorts, however, points towards the deterioration of vertical mobility patterns in both parts of Germany. Not only does downward mobility become more frequent, but it is increasingly long-downward mobility whereas upward mobility, in contrast, is less characterized by cohort change. This deterioration of experienced mobility patterns may have contributed to the more recent decline in life satisfaction in Germany (Easterlin & Plagnol, 2008) and affected the level of social cohesion (Delhey & Dragolov, 2014).

8.4 The evolution of segment-specific outflow mobility patterns

The aggregated account allows for the discernment of greater trends. While it provides a summary account, however, little is learned about origin-specific mobility patterns and trends. These trends, like all absolute mobility rates, are certainly driven and, in fact forced, by the structural change of the class structure described above. Nevertheless, a closer analysis of class-specific upward and downward mobility patterns reveals interesting differences between mobility flows from industrial and post-industrial classes and relates the study of social mobility to the experiences of those cohorts which are studied here. Figure 24 displays the aggregated mobility rates for each origin class for German men (left two panels) and women (right two panels). Instead of discussing all mobility flows in detail, we concentrate in the following on the highest and lowest classes before using a more aggregated display to discern the segmental differences in the mobility outflows. Where necessary, we further disentangle the outflow patterns into the constituent single mobility flows between each origin and the respective destination classes.

Figure 24: Outflow rates by social origin for German men and women



Note: Compiled dataset (refer to Ch. 6 for more information). Men: N= 41,928 and Women: N= 33,697.

The study of origin-specific mobility flows shows that downward mobility increased across cohorts for most individuals from the highest social origins, whereas social reproduction moderately decreased. Social reproduction declined among men with managerial origins from 47% in the first to 12% in the last cohort. Even if we compare the first with the next to last cohort, because of the generally older age of employees in managerial positions (ref Table 18), we still find that reproduction decreased to 31%. Similarly, reproduction decreased among women from managerial origins from initially 24% to 9% (12%) in the last cohort. While downward mobility from managerial origins increased considerably for men from 31% to 57% and for women from 58% to 66%, horizontal mobility into the professionals also grew strongly from 22% to 30% among men and from 8% to 25% among women. Downward mobility flows for men increasingly led into either industrial working classes and into the semi-professional class, whereas women were becoming more likely to be downwardly mobile into the semi-professionals or the unskilled service class. Thus, some but not all managerial families are able to achieve status reproduction over generations through the education-mediated inter-segmental trajectories.

In contrast, social reproduction among men born into the professional class was mostly stable (from 47% to 46%), but horizontal mobility into managerial positions declined markedly from initially 16% to 6% in the last cohort. Consequently, downward mobility rates grew from 37% to 49%. While mobility flows into lower industrial classes did not change substantively, men with professional backgrounds increasingly entered semi-professional and unskilled service worker positions. The evolution of outflow mobility trends among women is more promising. The share of downwardly mobile women with professional origins who maintained their father's class position increased over time from 15% to 35%, while horizontal mobility remained stable and downward mobility decreased considerably from 83% to 62%. The strongest decline is observable with regard to clerical destinations into which 44% entered in the first cohort but only 12% in the last cohort. In contrast, women from professional backgrounds entered increasingly the skilled and unskilled service worker class which, however, is likely to result from the younger age of the respondents in the last cohort. In total, mobility prospects differ quite strongly between industrial and post-industrial higher classes for both men and women. Moreover, structural change strongly affected the destinations of class mobility due to the change in the opportunity structure towards post-industrial positions.

Mobility patterns in the lowest working classes in both segments are also characterized by the upgrading of the occupational structure. Among men from unskilled manual origins, upward mobility flows fell continuously from initially 75% to 68% in the last cohort. Social reproduction increased slightly from 18% to 20% and horizontal mobility into unskilled service worker positions grew from 7% to 11%. Across cohorts upward mobility flows into professional, semi-professional and skilled service worker positions grew constantly, although they account even in the most recent cohort for less than 10% of the intergenerational trajectories each. With regard to women, we find that upward mobility flows increased from initially 50% to 56%, whereas class reproduction declined from 19% to 10% and horizontal mobility increased slightly from 31% to 33%. Disaggregating the upward mobility flows, we find that women with unskilled manual origins became less likely to enter the clerical and managerial positions over time and more likely to enter professional, semi-professional and skilled service worker positions. Thus, the mobility prospects for women, but not for men, from lower industrial classes became more favorable across cohorts.

Finally, I find that upward mobility flows among men with unskilled service worker origins declined from 83% to 76%, whereas social reproduction increased slightly from 10% to 11% and horizontal mobility increased from 6% to 14%. By disaggregating the upward mobility flows it becomes clear that higher industrial destinations lose significance across cohorts, whereas mobility flows into professional and semi-professional positions constantly increase. Especially long-range upward mobility into professionals soared from initially 2% to 17% of all mobility trajectories in the last cohort. The same is true for only 7% of the mobility flows from unskilled manual positions. Turning to women from unskilled service worker origins, we find that upward mobility increased from 53% to 58%, whereas class reproduction declined slightly from 36% to 34%. Horizontal mobility, finally, declined from 12% to 8%. Again the disaggregated mobility flows show the more favorable mobility patterns of women. While mobility flows into industrial classes declined or remained stable (managerial destinations), upward mobility increased substantially into professional destinations from 0% to 10% and into the semi-professional class from 7% to 15% in the last cohort.

While the characteristic patterns of the interrelation *of* structural change and mobility flows are already visible in these four cases, we will highlight segmental differences using the data for all classes. Because the number of all origin-destination combinations across cohorts is too high to easily reveal the interrelation of occupational change and the change of mobility flows, the respective information needs to be parsimoniously summarized. Based on the complete 10*10*7 tables for men (Table A. 2 in the appendix) and women (Table A. 3), Table 30 summarizes the change between the first and the last cohort with regard to all four mobility trajectories. Upward and downward mobility is further differentiated according to whether it includes passing the segmental divide or not. A ‘+’ indicates that the respective mobility flow increased, whereas a ‘-’ signifies that the respective mobility flow declined across cohorts. Only where the direction of change of mobility flows differs between men and women, we display a symbol for each gender (men/women).

Table 30: *Changing mobility between first and last cohort (men/women)*

	Origin Class									
Ouflows	M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PB	FA
UP: bw segments	n.d.	+	+	+	n.d.	–/+	–	–	+	+
UP: in segments	n.d.	–	–	–	n.d.	+	+	+	n.d.	n.d.
Reproduction	–	–	–	+/–	–/+	–	+	+/–	–/+	–
Horizontal	+	+	+	+	–	–	–	+/–	+	–/+
DW: bw segments	+	+	+/–	n.d.	–	+/–	+	n.d.	+/–	+
DW: in segments	+/–	–	+/–	n.d.	+	+	+/–	n.d.	n.d.	n.d.

Note: Derived from Table A. 2 and Table A. 3. UP denotes upward, DW denotes downward mobility. Cell entry prior to the slash represents the mobility trend for men and the entry following the slash the trend for women. n.d. = not defined; plus indicates increasing mobility flows, minus indicates declining mobility flows.

As expected, we see that mobility patterns are quite different between class segments. First, t upward mobility increasingly presupposes class attainment in the post-industrial segment. Due to the transformation of the middle classes, upward mobility across segments of men and women from industrial origins increased, whereas it declined for most individuals from post-industrial origins. The contrary is true once we consider within segment upward mobility flows. We see that upward mobility increased within the post-industrial class segment, but declined among individuals from industrial classes.

Second, the offspring of most industrial classes increasingly struggle with class reproduction, whereas social reproduction frequently increased among individuals with post-industrial origins. There are three exceptions. Men from unskilled manual backgrounds became slightly more likely to enter their father's class in the last compared to the first cohort. Sons of professionals were less likely to attend the same class as their fathers and, finally, women growing up in the unskilled service worker class became more likely to be upwardly mobile than to stay in their father's class. As noted in more detail before, the declining class reproduction among male professionals was marginal and most likely due to the younger age in the last cohort.

Third, horizontal mobility increased among the offspring of all industrial origins but decreased among individuals with a post-industrial class background. There is only one exception to this general pattern. Men from unskilled service origins are increasingly likely to move into unskilled manual positions. This is driven by the recent increase in unskilled manual positions among men, which attracted this primarily lateral mobility.

Finally, there are little differences between segments with regard to downward mobility rates because they increased among both men and women from most origins independent of whether mobility flows crossed segments or not. While downwardly mobile trajectories increased among men from nearly all origins, women were less likely to be downwardly mobile if their origin and destination lay in the industrial segment, but were increasingly downwardly mobile if they moved from post-industrial origins to industrial destinations. The latter results from the decreasing class attainment of women in the lower manual class segments.

Thus, the occupational structural change had a clear effect on intergenerational mobility experiences among men and women. Individuals from industrial backgrounds increasingly had to shift class segments to either achieve upward mobility or status maintenance, whereas individuals from post-industrial backgrounds achieved upward mobility or reproduction more frequently within this segment. The different mobility prospects for children from managerial and professional origins illustrate the usefulness of the horizontal differentiation. To achieve status maintenance over generations, mobility strategies increasingly focused on lateral trajectories into the post-industrial segment and less in direct class reproduction. The increase in downward mobility flows, however, affected individuals from both segments and men to a larger extent than women. In fact, women overall profited from structural change more than men because the expansion of post-industrial occupations offered them more, although not always better, opportunities for upward mobility than the industrial segment had.

8.5 Summary

In total, the class structure of men and women changed considerably across cohorts. German men and women experienced an upgrading of their respective class structures, especially in the growing post-industrial middle class segment, whereas the (manual) working classes and the (clerical) rank and file office workforce contracted. At the same time, the composition of the working classes changed differently for men and women. While the former experienced a considerable loss in skilled positions resulting in both a partial upgrading and polarization through the increase of unskilled service positions and higher post-industrial classes, the latter experienced the gradual replacement of unskilled manual and service occupations with skilled service and higher post-industrial occupations, resulting in an upgrading of the overall class attainment of women and their growing participation in the post-industrial middle classes. Finally, we found profound evidence for the convergence of the class distributions between men and women.

While the changing class distributions affected the horizontal mobility patterns, absolute mobility changed considerably across cohorts. Upward mobility decreased at least in the younger cohorts among men, whereas the increase of women's upward mobility chances stalled. Over the same time period, downward mobility rates increased (men) or stagnated (women) over birth cohorts born in the latter half of the century. While the general trend is towards less rather than more opportunities for intergenerational promotion, class reproduction and lateral mobility declined only moderately across cohorts, testifying to the particularly rigid class structure in Germany. Thus, mobility patterns overall became less favorable for Germans since cohorts born after WWII. Much like gender differences, the variation in mobility rates between East and West Germans also declined across cohorts. While East Germans more often experienced upward mobility and less frequently downward mobility in the early cohorts, mobility opportunities grew more similar with the rigidification of the class system in East Germany and the opportunities for mobility created during the early years of rapid economic growth in West Germany.

While these primarily vertical mobility trends are informative regarding the change in the quantity of mobility opportunities, the analysis of origin-specific mobility patterns yields more detailed information on the evolution of the interaction of horizontal differences and vertical mobility opportunities. The expansion of post-industrial and the contraction of industrial classes worked as push and pull factors that increased upward mobility chances within the post-industrial segment or among individuals which moved from industrial origins to post-industrial destinations, and decreased upward mobility opportunities in the industrial segment or lateral mobility into the later segment. Individuals from industrial backgrounds increasingly had to change their class segment to either achieve upward mobility or status maintenance, whereas individuals from post-industrial backgrounds achieved upward mobility or reproduction more frequently within this segment. The different mobility prospects for children from managerial and professional origins illustrate the segmental divide. The general decrease in upward mobility flows, however, affected working class individuals from both segments and men to a larger extent than women. In fact, women overall profited from structural change because they were more often mobile into the higher post-industrial classes than they were in the industrial ones. We now turn to the analysis of intergenerational class mobility in the United States.

9 Absolute mobility in the U.S. over the 20th century

After studying absolute mobility patterns in Germany, we now turn to the United States. This chapter follows the analytic strategy developed for the German analysis. All the following analyses draw on the compiled dataset described in Ch. 6. The full sample is roughly 1.5 times the size of the German sample. It consists of nearly 111,000 observations, of which 40% are women (Table 31). The comparably low rate of women in the sample is mostly due to the OCG-II data which was only collected from men in the civilian labor force. The data employed in the following analyses was collected in either of the four surveys between 1968 and 2012. Again, the sample is restricted to individuals aged 30 to 64 that were not in education during the time of the survey in order to avoid measuring entry positions or post-retirement occupations as destination classes. Consequently, individuals are born between 1905 and 1982 with an average year of birth during the last phase of World War II in 1944. Around 30% of the sample was drawn from the GSS and 26% were interviewees taken from the SIPP. The remaining observations were taken equally from the PSID (23%) and the OCG-II (22%) surveys.

In some of the following analyses, the sample is further differentiated by region and race. While it would have been desirable to group states into regions according to some thematic logic, e.g., the Northeastern and Midwestern states that comprise the historical manufacturing and contemporary Rust Belt of the U.S. versus the flourishing southern Sun Belt states, the smallest common denominator for the regional clusters available in all surveys are the four 1942 Census Bureau regions of the Northeast, West, Midwest and South,excluding the District of Columbia. Alaska is assigned to the West and Hawaii to the South region.

The distribution of cases in the full sample is reasonably close to the actual population distribution given that the sample has been collected over the last four decades. Around 20% of the sample lived at the time of the survey in the Northeastern region, whereas 18% of the actual population lived there in 2014 (Bureau, 2015). The rest of the sample distributes along the regions as follows (with the respective population fraction in 2014 in brackets), 25% (21%) in the Midwest, 36% (38%) in the South and 19% (24%) in the West. With regard to ancestry, the sample comprises around 77% white Americans, 16% African Americans and 7% Hispanics. Compared to figures of the Census Bureau, we overestimate whites (62%) and African Americans (12%) but underestimate Hispanics (17%), most

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likely due to sampling restrictions in older surveys and the then usual joint observation of race (white/African American) and the more heterogeneous category of Hispanic, which conflates national, ethnic and racial self-attributions (McKenney & Bennett, 1994).

Table 31: Characteristics of the American analysis sample

		1915-1924	*1925-1934*	*1935-1944*	*1945-1954*	*1955-1964*	*1965-1974*	*1975-1984*	*Full Sample*
Age	Min.	45	35	30	30	30	30	30	30
	Mean	57.7	51.1	43.6	42.6	39.4	38.0	33.0	45.0
	Max.	64	64	64	64	57	47	37	64
Survey year	Min.	1968	1968	1968	1974	1984	1994	2005	1968
	Mean	1975	1981	1983	1993	1998	2006	2011	1989
	Max.	1988	1998	2008	2012	2012	2012	2012	2012
Year of birth	Min.	1905	1925	1935	1945	1955	1965	1975	1905
	Mean	1918	1930	1940	1950	1959	1969	1978	1944
	Max.	1924	1934	1944	1954	1964	1974	1982	1982
Source (in %)	PSID	13.6	10.4	10.7	22.3	37.7	52.1	79.8	23.2
	GSS	19.9	20.1	26.4	34.7	37.8	47.9	20.2	29.5
	SIPP	6.1	28.7	30.9	43.0	24.5	0.0	0.0	25.8
	OCG-II	60.4	40.8	32.1	0.0	0.0	0.0	0.0	21.5
Region (in %)	North E.	23.3	22.5	21.0	18.4	17.0	15.6	13.1	19.7
	Mid-W.	27.1	26.9	25.2	24.6	23.7	23.1	23.8	25.2
	South	33.0	33.2	35.0	36.7	37.8	41.6	43.5	36.0
	West	16.6	17.4	18.8	20.3	21.4	19.7	19.6	19.1
Sample (in %)	Women	19.2	28.6	34.1	49.6	51.0	52.2	52.4	39.3
	White	84.6	83.7	82.5	78.0	68.9	61.4	56.1	77.4
	African American	14.1	13.1	12.8	14.5	19.3	23.2	28.4	15.7
	Hispanic	1.3	3.2	4.8	7.6	11.7	15.5	15.6	6.9
	Obs.	14,454	18,718	23,433	24,538	18,549	7,427	3,728	110,847

Note: Compiled dataset (refer to Ch. 6 for more information).

To study change in class mobility, the full sample is again differentiated into seven birth cohorts. The oldest birth cohort (1915-1924) comprises 14,454 individuals, the next younger one (1925-1934) 18,781, and the following cohorts 24,433 (1935-1944), 24,538 (1945-1954), 18,549 (1955-1964), 7,427 (1965-1974) and the most recent cohort (1975-1984) 3,728 individuals. Observations in most cohorts are distributed across three or four decades, whereas the first cohort is restricted to surveys conducted in the 1970s and 1980s and data for last two cohorts has been collected in less than two decades. The average age at the time of the interview coincides with or lies near the midpoint between the upper and the lower bounds of each cohort. As was the case with the German data, the cohorts distribute unevenly across surveys. The oldest cohorts are populated in large parts by respondents from the OCG-II and SIPP surveys, whereas the PSID and GSS are the most important sources for the more recent cohorts. Thus, it is possible that effects in the first and last cohorts are subject to period or survey effects.[57]

Following the actual geographical mobility patterns, cohorts vary substantially with regard to the place of residence. 23% and 27% of Americans in the oldest cohort lived in states in the Northeast and Midwest, whereas only 13% and 24% of the last cohort lived in these regions. In contrast, individuals from younger cohorts were more likely to be interviewed in the South or West regions. The respective shares increased from initially 33% to 44% and from 17% to 20% of the most recent cohort. Most of the change in the regional distribution took place in cohorts born after World War II and coincides with the economic, social and political development in the different regions in the U.S. (Hobbs & Stoops, 2002; Fischer & Hout, 2006). While the South and West became more economically affluent and politically civilized over the last half of the century, the Northeastern and partly the Midwestern regions turned from the heartland of American manufacturing into the Rust Belt following economic changes that resulted in deindustrialization, severe population and job losses and severe economic recessions (Wilson, 1997; Kim, 1998; Tolnay, 2003).

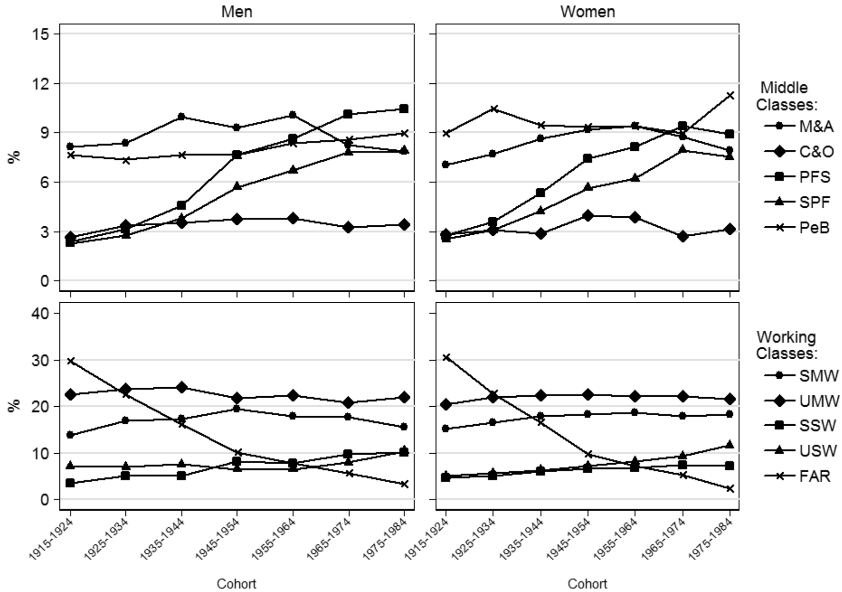
Finally, we observe a pronounced change in the race distribution across cohorts in the U.S. While the share of whites declined, the share of African Americans and particularly Hispanics increased across cohorts. While the increase of Hispanics in the last cohorts coincides with the growing immigration from South and Central America since the 1960s (Fischer & Hout, 2006, p. 37f.), the strong increase in African Americans is due to the high shares of PSID respondents in the last two cohorts and the overrepresentation of this minority in the PSID. Because this study claims to study the mobility patterns for all Americans, analysis will always be performed separately for each racial or ethnic group where possible and necessary to account for the greater number of the African Americans in the latter cohorts.

[57] Sensitivity analyses including years or surveys have shown that the OD association is not affected to such an extent as to alter the general conclusions from the following analyses in Ch. 12.

9.1 Changing distributions of education, origin and social class

The analyses of mobility experiences, i.e. absolute mobility rates, in the United States will be pursued analogously to the procession in the German case. First, the evolution of the distributions of origin class, educational attainment and destination class positions are studied in order to set the environment which enforces or impedes intergenerational mobility trajectories.

Figure 25: Origin class distribution of men and women, U.S.



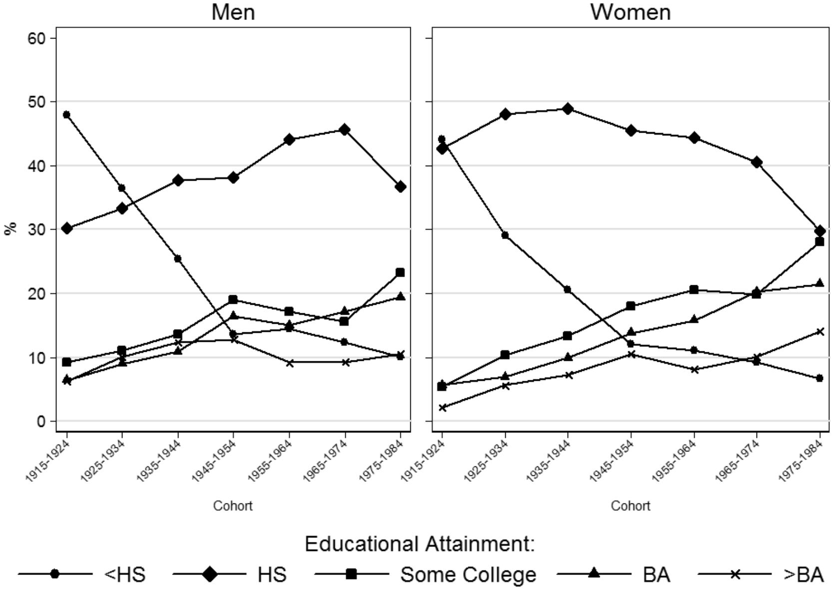
Note: Compiled dataset (refer to Ch. 6 for more information) with Men: N=66,826, Women: N=43,211.

Again, we do not find great differences between men and women with regard to their social origins. The dissimilarity index comparing the origin distribution of men with that of women ranges between 3% (cohort 1945-1954) and 6% (1975-1984). Figure 25 displays the distribution of class background by cohort for men (left panel) and women (right panel). Much like in Germany, middle class origins (upper panel) in the post-industrial segment expanded over time, and men and women were increasingly likely to be raised in professional and semi-professional classes. The respective shares increased from 2% (3%) and 2% (3%) of all men (women) in the first cohort to 10% (9%) and 8% (8%) in the last cohort. Over the same period, managerial origins remained overall stable at around 8% of all origins among both men and women in the first and last cohorts. Similarly stable were clerical backgrounds with around 3% of fathers in each cohort. Finally, petty bourgeoisie backgrounds increased among men moderately from 8% to 9%and among women from 9% to 11%. Overall, there is little change regarding industrial middle class backgrounds, but a comparatively strong expansion of post-industrial intermediate class origins.

Even less change is observable with regard to the distribution of working class origins across cohorts (lower panel). With the exception of a farm background in the oldest cohorts, men and women of all cohorts were most likely to have a skilled or unskilled manual father. While more than 20% of men and women in each cohort have had a father in the unskilled manual class while growing up, the share of men and women with fathers in the skilled manual class increased across cohorts from initially 14% to 16% of men and from 15% to 18% of women. Farm backgrounds play a substantial role only in the first cohorts but declined markedly over the following cohorts. While around 30% of men and women grew up on a farm, their shares declined to 3% of men and 2% of women in the last cohort. Contrary to Germany, we find a comparatively strong increase in service worker origins most likely due to the earlier expansion of personal services in the U.S. (Esping-Andersen, 1993). In the oldest cohort, skilled and unskilled service worker positions accounted for 4% and 7% of men's and 5% each of women's social backgrounds. Their respective shares rose for men to 10% each and for women to 7% and 12% in the youngest cohort. Thus, the evolution of class origins in the U.S. is characterized by a polarization of backgrounds with the expansion of both higher middle and lower post-industrial class origins.

Turning to educational attainment, the overall trend of educational expansion across cohorts is very much the same as in Germany (Figure 26). Five educational levels are differentiated ranging from less than a high school degree (<HS) to a high school diploma (HS), some years in college or an Associate's degree (some college) to a bachelor's degree at a four-year college (BA) and postgraduate studies or a professional degree (>BA). Most strikingly, we observe that high school dropouts, i.e. individuals without any degree, declined strongly particularly over the first four cohorts. While 48% of men and 44% of women did not finish secondary education in the first cohort, the same was true for only 10% of men and 7% of women in the last cohort. At the same time, men with a high school diploma only (or a G.E.D) increased from 30% of the first cohort to 46% of the sixth cohort only to decrease in the final cohort to 37%. The share of female high school graduates peaked already in the third cohort with 50% and declined over the rest of the observation period to a mere 30%.

Figure 26: Educational distribution of men and women, U.S.



Note: Compiled dataset (refer to Ch. 6 for more information) with Men: N=66,826, Women: N=43,211. See surrounding text for explanation of abbreviations.

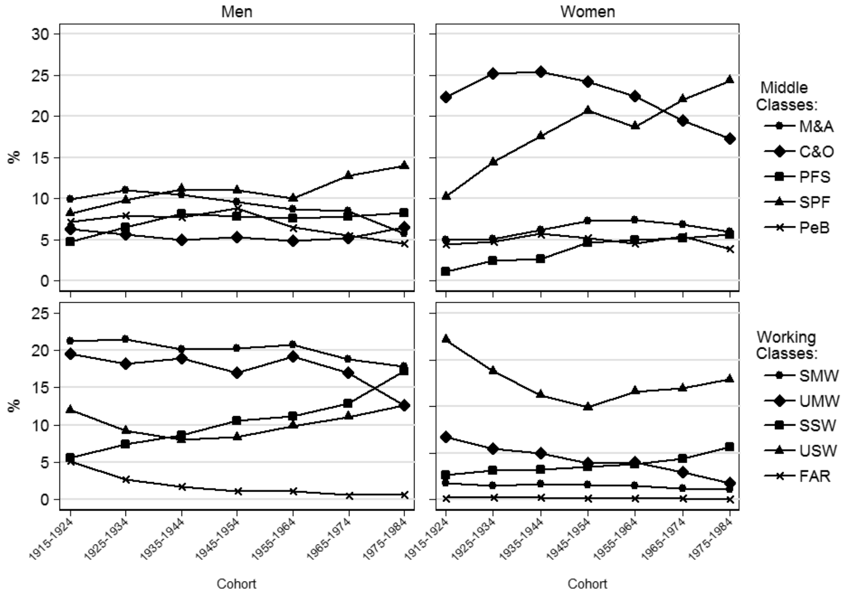
While lower educational attainment decreased markedly over time, all types of tertiary education grew strongly. The share of men and women having spent some years in college grew from 9% to 23% and from 5% to 28%. Over the same period, the share of men with a four-year college or an advanced degree rose from initially 7% to 20% and from 6% to 11% in the most recent cohort. Women surpassed men over the 20th century with regard to tertiary education (Goldin et al., 2006). While only 6% and 2% of women born at the dawn of the 20th century achieved a bachelor's degree or an advanced degree, 22% of the last cohort graduated and 14% completed post-graduate studies. Among both men and women, college graduation rates increased linearly until the cohort born between 1955 and 1964, partly due to financial aid to veterans of World War II made possible through the G.I. Bill and similar allowances for veterans from the Korean war (Bound & Turner, 2002).[58] The following dip in graduation among men and women is frequently explained with the temporary relative decline in the college premium and the end of conscription for men born after 1952 (Card & Lemieux, 2001). Until then, college attendance was a strategy (among better-off white men) to avoid military service in the Vietnam conflict (Kuziemko, 2010). Across the following cohorts, the various forms of college graduation increased again among women, but only partly among men. The resulting reversal of the college gender gap corresponds to findings that show that women's rate of returns from higher education in terms of standard of living, marriage probability and diminishing poverty risks rose faster than those of men, resulting in a relatively higher utility of tertiary education for women (Diprete & Buchmann, 2006).

With the increase of educational attainment, occupational destination classes are likely to have changed as well (Figure 27). Like in Germany, men (left panel) and women (right panel) populated different class locations due to the stratification of the class structure by gender. With one-third to one-fifth of the respective birth cohorts, men were most likely to enter the skilled manual class and women most frequently became unskilled service workers. The change of the class structure evolves largely around the gender-sensitive contraction of the industrial segment and the expansion of post-industrial classes (Esping-Andersen, 1999).

In the middle classes (top panel), the share of professionals and semi-professionals increased among men from 5% to 8% and from 8% to 14%. At the same time, managerial destinations halved from initially 10% to 6% in the last cohort. Similarly, clerical positions declined among men between the first and the fifth cohort from 6% to 5%, but increased over the two most recent cohorts to nearly 7%. Post-industrial classes grew more pronounced among women than men. The share of professional and semi-professional class positions grew constantly from initially 1% to 6% and from 10% to 24%. In contrast, clerical positions declined among women from initially 22% to finally 17%. However, we observe little change with regard to managerial positions, which increased slightly from 5% in the first cohort to 6% in the last cohort.

[58] Allowances under the G.I. Bill covered tuition, a monthly stipend and other benefits depending on the length of the military service and the marital status of the veteran. The subsidy was generous enough to allow enrollment in elite institutions like Harvard University (Bound & Turner, 2002, p. 790).

Figure 27: Destination class distribution of Americans by cohort



Note: Compiled dataset (refer to Ch. 6 for more information) with Men: N=66,826, Women: N=43,211.

The petty bourgeoisie of self-employed outside of agriculture, finally, increased among men between the first and the fourth cohort from 7% to 9%, but contracted thereafter to finally 5%. The share of petty bourgeois women peaked already in the third period after growing from 4% to 6% and dwindled again to finally 4%. This finding is clearly at odds with other national and cross-country comparative research that points towards an initial decrease followed by a reemergence of self-employment at the end of the 20th century in almost all developed countries including the U.S. (Steinmetz & Wright, 1989; Arum, 1997; McManus, 2000, 2001; Arum & Müller, 2004). The diverging trends are likely to result from conceptual decisions made in this study. First, the aforementioned studies employ a period design whereas here a cohort design is chosen which does not resemble the actual composition of the labor market but rather the average by birth cohort over several decades. As such, the slow increase of self-employment observed in the earlier cohorts might be indicative for the general trend in the population because these older cohorts are investigated in an age in which self-employment is increasingly likely (Arum, 2007). That self-employment is less frequently observed in more recent cohorts may therefore be due to the younger age in which these cohorts are on average observed. Second, the well-grounded decision to treat self-employment in professional and managerial positions differently from self-employment in other occupational classes also accounts for the lack of any reemergence of self-employment in our sample (Arum, 1997; Arum & Müller, 2004). The growth of self-employment in the U.S. happened mostly in lower (service) and higher professional positions (Arum, 1997; McManus, 2000; Arum, 2007). Naturally, IPICS might detect the former but not the latter because it assigns self-employed professionals to the class of professionals (ref. to Ch. 15.1).

The working class trends provide further evidence for the transition from a manual to a post-industrial service working class (bottom panel), which is markedly more pronounced in the United States than in Germany. Among men, industrial working class positions declined linearly. While skilled manual positions accounted for 21% and unskilled manual positions for 20% of men's class in the first cohort, their respective shares declined to 18% and 13% in the last cohort. Over the same time period, skilled service workers grew from initially 6% to finally 17% of all class positions of men. The class of unskilled service workers, however, contracted between the first and the third cohort from 12% to 8% only to gradually expand thereafter to 13% of men in the last cohort. Among women, we observe a very similar picture. While skilled manual positions declined from 4% to 2% and the unskilled manual class contracted from 14% to 4%, the skilled service class grew from 5% to 11%. However, the share of women working as unskilled service workers declined dramatically from initially 34% in the first cohort to below 20% in the fourth cohort, only to expand thereafter to 26% in the most recent cohort. For both men and women we thus observe a pronounced segmental shift coupled with a mixture of upgrading and polarization of working class positions. While the first phase of segmental shift is characterized only by the expansion of better-off post-industrial positions, later phases are characterized by the simultaneous growth of skilled and unskilled positions. Similar findings have been reported for several European countries (Oesch, 2013). Finally, we observe among men and women the final demise of the self-employed in agriculture. Men's share declined from 5% to below 1%, whereas women in farming fell from initially 0.4% to finally 0.1%.

Although strong gender differences continue to exist in the access to class positions, we overall observe some convergence of the class distributions of men and women across time. The dissimilarity index comparing both class distributions declined across cohorts from 39% to 34%, meaning that even in the most recent cohort, one-third of all women still would have to change their class position in order to have a gender-neutral class distribution. While this convergence is partly driven by the inflow of women in the professional class and out of the clerical class, men in more recent cohorts increasingly entered semi-professional positions and the service working classes. With these findings at hand, it may be argued that the latter half of the 20th century has not only seen the feminization of the labor force, but at its end also experiences increasingly the masculinization of service work in the United States.

Summing up, the study of the evolution of origin, education and destination distributions across cohorts yields interesting results for the United States. The transformation of the occupational structure affects both origin and destination class distributions. While the former is characterized by a pronounced decline in self-employment within agriculture and the expansion of the post-industrial middle classes, little change occurred around working class origins. Skilled and unskilled manual positions are the most frequent origins in each cohort with little change taking place over time. Similar, destination class distributions are characterized by the expansion of the post-industrial and the decline of some, but not all, of the industrial middle classes.

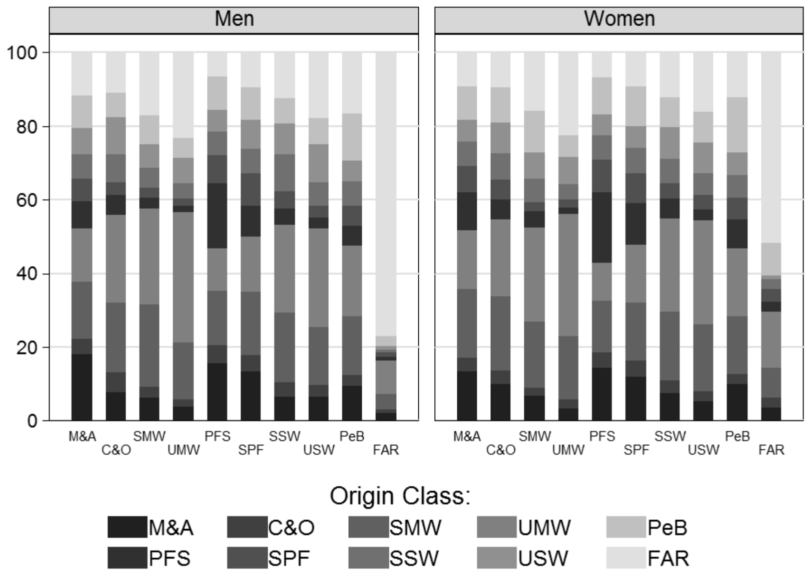
At the same time, the composition of the working class underwent pronounced changes. While manual classes diminished across cohorts, service working class positions grew unevenly across time. Lower service class positions contracted initially only to expand again in later cohorts. These trends coincide with the positive evolution of educational attainment. A steady increase of educational attainment is observable among men and women across cohorts. This trend is congruent with the general upgrading of occupational origins across time. The higher the share of education intensive post-industrial middle class parents in our sample, the likelier a high educational attainment in the children's generation, due to the positive correlation between parental class and children's educational attainment. Consequently, children's class distributions are also characterized by an increase of higher post-industrial middle-class positions at the expense of both industrial middle and working class positions.

At least in the last two cohorts, however, the growth in educational attainment is not completely matched by the upgrading of the occupational class structure because low- and high-skilled service workers became more numerous among the destination distributions. Much like in Germany, the changes in the occupational structure will also have affected absolute mobility experiences of Americans across the last century substantially. Before the investigation of cohort trends in absolute mobility flows commences, however, the average class mobility patterns in the United States across four decades are studied to obtain a clear picture of how classes are related to each other.

9.2 Aggregated mobility patterns

The analysis of absolute mobility experiences begins from the inflow perspective. Again, mobility inflows represent the distribution of origin classes found for each destination class and represent the recruitment base of each class. Mobility inflows are displayed separately for men (left panel) and women (right panel) in Figure 28. Like in Germany, farmers are also in the United States the class with the highest self-recruitment. Three-fourths of males (77%) and every second female farmer (52%) have inherited the class membership of their father. In all other classes, skilled and unskilled manual backgrounds are the most frequent origins because of the sheer size of these classes.

Figure 28: Inflow mobility of American men and women



Note: Compiled dataset (refer to Ch. 6 for more information); Men: N=66,826, Women: N=43,211.

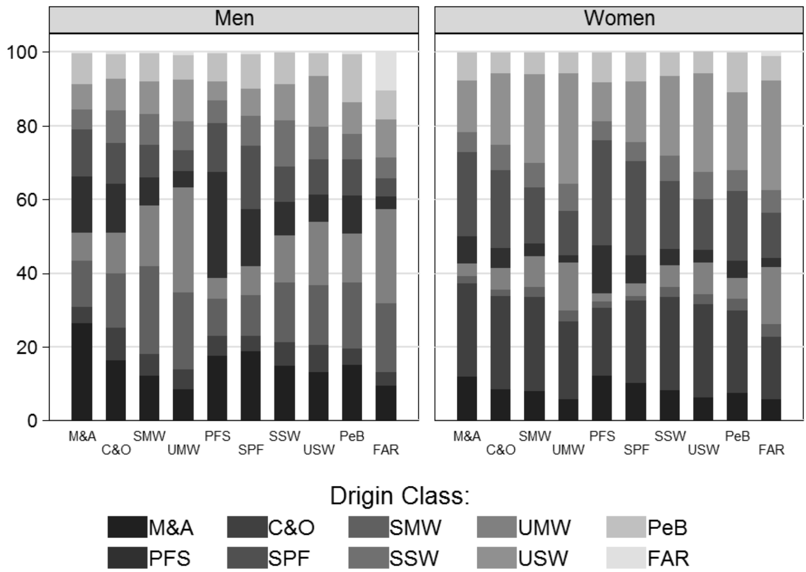
Compared to Germany, class origins are much more heterogeneous in the U.S., supporting the frequently made claim about high rates of *experienced* mobility. Substantial self-recruitment can only be stated among men for skilled manual

(22%) and unskilled manual workers (36%), and less substantial rates are observable among managers, professionals (both: 18%) and self-employed (13%). Similarly low are self-recruitment rates among women. Self-recruitment is highest among female unskilled manual workers (33%), professionals (19%), skilled manual workers (18%), self-employed (15%) and managerial positions (13%), whereas in most other classes, class backgrounds are highly heterogeneous.

This multiplicity of class backgrounds is, however, not arbitrary. Men in managerial positions, for instance, frequently had fathers who were self-employed within (12%) or outside of agriculture (9%). Consequently, more than 40% of managers grew up in households in which the father's livelihood depended on one or the other form of managerial and organizational expertise. There are also origin-specific recruitment patterns in post-industrial higher classes. Professionals frequently grew up in managerial origins (men: 16% and women: 14%), whereas managers comparatively rarely originated in professional positions (men: 7% and women: 10%). The same pattern can be found among semi-professionals. 13% of male and 12% of female semi-professionals grew up in managerial families, but only 6% of male and 7% of female managers grew up with a semi-professional father. While (semi-)professionals are intimately familiar with the managerial class situation, its needs, preferences and wants, the opposite is seemingly less true. Collapsing the middle and working classes, further reveals vertical differences in the recruitment pattern. While 36% of men and 32% of women in the middle classes grew up in middle class families, the same was true for only 14% of men and 15% of women in the American working class. Self-reproduction in the working classes was even higher. Around 61% of men and women in working class positions also grew up in working class households.

Figure 29 displays the corresponding outflow mobility rates, i.e. the origin-specific class attainment of American men (left panel) and women (right panel). Due to the gendered class structure, and much like in Germany, outflow mobility patterns differ markedly between men and women (Hout, 1988). In male dominated classes, class reproduction is the most frequent outcome of mobility strategies. Around 26% of sons of managers and administrators enter themselves into the managerial class. The share of immobile men is lower among men from skilled manual origins (24%) and equally high among men from unskilled manual origins (28%). While immobility is comparatively low in other post-industrial classes, professionals are most likely to be immobile (29%). Women, in contrast, are particularly likely to be immobile if their fathers were in the clerical (25%), semi-professional (26%) or unskilled service worker class (27%). Comparatively low degrees of intergenerational mobility are also due to the gendered class attainment. Men from all but the highest class origins are particularly likely to enter into skilled manual positions, whereas one-fourth to one-fifth of women from each class background take the "archetypical paid job for women in North America" and end up in the clerical class (England & Boyer, 2009).

Figure 29: Outflow mobility of American men and women



Note: Compiled dataset (refer to Ch. 6 for more information); Men: N=66,826, Women: N=43,211.

The vertical barriers that impede or foster intergenerational trajectories between particular classes are frequently gendered as well. Daughters of professionals, for instance, are much more likely to enter semi-professional occupations (29%) than the professional class (13%). Similarly, daughters of managers more frequently enter into clerical (25%) or semi-professional positions (23%) than managerial positions (12%). Sons of clerical workers, on the other hand, are more likely – in fact, most likely – to enter managerial (16%) rather than clerical positions (9%). Thus, within the higher echelon of the industrial and post-industrial hierarchies, women usually move into the middle but not into the higher classes, even if they originate in higher positions. Another indication for intergenerational gender barriers is provided by the difference between the origin and the destination class distributions of men and women. The dissimilarity of origin and destination class distributions is with 47% more than double the size among women than among men with only 19%. In other words, every second woman but only every fifth man would have to enter a different class than they actually do in order to obtain equal origin and destination class distributions.

Although mobility destinations are in general more heterogeneous as compared to Germany, there is also clear evidence for vertical boundaries that minimize upward and downward mobility experiences in the U.S. While only 8% of men and 3% of women from managerial backgrounds enter the unskilled manual class, 8% of sons and 6% of daughters of unskilled manual workers enter managerial positions. Even higher mobility barriers are observable between unskilled manual workers and professionals. While 5% of men and 2% of women from unskilled manual positions attain the professions, 6% of professionals' sons and 2% of their daughters enter unskilled manual positions. Similar barriers to long-vertical mobility exist also for the offspring of unskilled service workers.

Congruent with the cross-segment self-recruitment patterns, there are also specific lateral mobility channels. From all men with managerial fathers, 15% enter professional and 13% enter semi-professional positions. We observe a comparable pattern of lateral mobility among women, however, the above described vertical barriers limit lateral mobility flows. As reported above, every fourth woman from a managerial background moves into a semi-professional position (26%), but only 7% enter the professional class. Vice versa, around 12% of women with professional backgrounds enter the managerial class. The horizontal mobility flows within the working class are to an even greater extent structured by gender. Both men from skilled manual origins and skilled service origins rather enter skilled manual positions (24% and 16%) than the skilled service class (9% and 10%). Similarly, women from unskilled manual and unskilled service backgrounds are less likely to enter unskilled manual positions (13% and 9%), but more likely to attain the unskilled service working class (30% and 27%). While this pattern demonstrates the gendered structure of the working classes, it also shows that status maintenance is more frequent in the industrial than the post-industrial working class. Whether this might also coincide with different mobility barriers faced in the lowest positions of each segment will be considered later in more detail.

The observed mobility is rather characterized by small-range than long-range moves. Collapsing the classes into independent, middle and working class positions, around 58% of men and 67% of women growing up in the middle class remain in similar class locations later in their lives. In contrast, 61% of men and 47% of women growing up in working class households experience immobility. The concurrence of high levels of middle class persistence and frequent mobility into the middle class (both 47%) among women is, of course, due to including the frequently white collar rank-and-file positions in the middle class. If the clerical class is instead assigned to the working classes, only 46% of women from the middle classes, but 70% of women from the working classes, are immobile, while upward mobility flows from working class origins sum up to only 25%. Thus, the noticeably low level of immobility in the U.S. does not mean that class attainment here is independent of class origins. To the contrary, once we collapse the classes we find similarly strong barriers preventing mobility between working and middle classes as in Germany. Thus, more frequent mobility incidences in the U.S. do not represent the exceptional rags-to-riches social ascension, but are mostly short-range mobility trajectories between adjacent classes.

9.3 Changing aggregated absolute mobility patterns

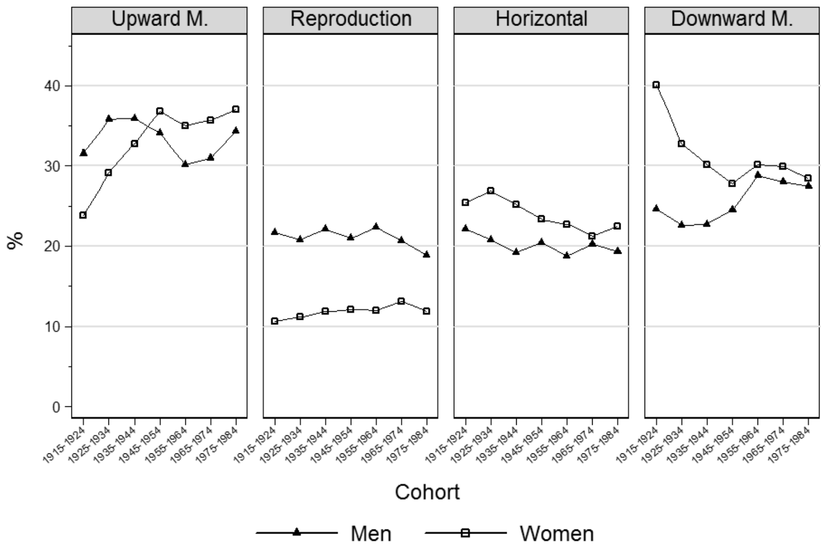
Absolute mobility patterns are again first studied at the aggregate level to reveal the change in the vertical mobility patterns before turning to the interrelation of horizontal and vertical mobility further below. To create the aggregated mobility vertical mobility flows, each class is assigned to one of three vertical levels, i.e. the highest classes (M&A, PFS), middle classes (C&O, SMW, SPF, SSW, PeB, FAR) and lowest classes (UMW, USW). Additionally, class immobility is differentiated between social reproduction and horizontal immobility. Consequently, four possible mobility trajectories are obtained: upward mobility, social reproduction, horizontal mobility and downward mobility (for the detailed origin by destination assignment, refer to Table 27). Before analyzing mobility trajectories within multiple subgroups, the trends of intergenerational mobility flows among all American men and women will be studied.

Figure 30 presents the social mobility experiences in the United States for men and women born over the course of the 20th century. Based on the compiled dataset, upward mobility in the U.S. increased among men born before the end of World War II from initially 32% (1915-1924) to 36% in the third cohort (1934-1944). Over the following two cohorts, i.e. men born between 1945 and 1954 and between 1955 and 1964, upward mobility decreased below its initial level to 30% and remained mostly stable among men born between 1965 and 1974. Only in the last cohort of men born between 1975 and 1984, absolute upward trajectories again increased to 34%. Compared to men, upward mobility rates of women in the United States were also historically lower, although the gender difference is much smaller than in Germany. In the first cohort, only 24% of American women were upwardly mobile. This rate increased continuously to 37% of women born between 1945 and 1954. While upward mobility rates decreased in the following cohort by two percentage points, they again reached 37% in the most recent cohort. It is difficult to compare these findings to previous research because contemporary intergenerational class mobility research does not usually report absolute mobility rates (Beller, 2009; Torche, 2011; Pfeffer & Hertel, 2015) and earlier research focused solely on period comparisons (Hauser et al., 1975; Featherman & Hauser, 1978; Hout, 1988). Nevertheless, we might suggest that the described trend coincides with the continuous increase in male upward mobility found for different cohorts born at the beginning of the century as described by Blau and Duncan (1967, p. Ch. 3) and its subsequent drop found by Featherman and Hauser (1978, p. 68f.) for younger cohorts in 1973 and by Hout (1988, p. 1382f.) for cohorts in the mid-1980s.[59] The mobility of the most recent cohorts born around the time of the aforementioned studies experienced a slight increase of upward mobility trajectories resulting in an overall picture of constant flux among men, and a more or less continuous increase of upward mobility among women.

While there is little change across cohorts regarding social reproduction, horizontal mobility rates declined moderately across cohorts, especially among men. Around 22% of men in the first cohort and 19% in the last cohort were in the same class as their fathers. Among women, immobility increased linearly from initially 11% to 13% in the next to last cohort, only to decline again to below 12% in the last cohort. Similarly, horizontal mobility declined only modestly between the first and the last cohort from 22% to 19% among men and from 25% to 23% among women. Thus, any decrease found in social reproduction in earlier work is mostly due to declining mobility between industrial, post-industrial and independent classes. Again, the decrease of horizontal mobility is mostly driven by the declining outflows from contracting agricultural class origins. Excluding farm origins from the picture results in stable horizontal mobility flows among men and women across cohorts.

[59] All of the aforementioned authors constructed synthetic cohorts from the age at the time of the survey, which is one or a few years. This is problematic because cohorts are sampled at different age points. Because mobility strategies may take various years depending on the final destination, mobility might in fact be overestimated, especially in younger cohorts. Additionally, period effects, for instance a recession or economic growth phase, could mask cohort differences in mobility because it affects the age groups differently. The chosen design in this study, in contrast, not only excludes younger respondents, but constructs cohorts from several time points in order to average out period effects. Therefore, the found similarity is indicative at best.

Figure 30: Total mobility rates of in the United States



Note: Compiled dataset (refer to Ch. 6 for more information); Men: N=66,826, Women: N=43,211

The evolution of downward mobility rates in the United States very much resembles the one found for Germans. Among men, downward mobility experiences declined between the oldest and the third cohort slightly from 25% to 23%, but grew thereafter to 29% in the cohort born between 1955 and 1964. The frequency of downwardly mobile trajectories remained mostly stable across the following two cohorts with about 28% of Americans born between 1975 and 1984 having experienced downward mobility until 2012. Thus, American men today have experienced downward mobility more frequently than most of their predecessors over the 20th century. Like in Germany, American women born in the first half of the 20th century experienced decisively higher downward mobility rates than men. While 40% of women born before 1924 were downwardly mobile, less than 28% of American women born in the decade following World War II (1945-1954) experienced downward mobility. The increase in downward mobility rates over the following cohort was much more moderate among women and peaked at about 30% of those born between 1955 and 1964. In the following two cohorts, downward mobility accounted for about 29% of the intergenerational trajectories experienced by women. In total, downward mobility decreased markedly among women over the entire century, but most of that improvement benefited cohorts born before the end of World War II. Consequently, the frequency of intergenerational demotions of American men and women converged across cohorts due to the decrease of women and increase of men that experienced downwardly mobile trajectories.

Regional differences in mobility rates in the United States

The increase of upward mobility and decrease of downward mobility experiences observable among women is intimately related to landslide changes in the educational and class attainment of women. In order to better understand how absolute mobility patterns are shaped by structural change, early mobility and status attainment research studied the influence of geographical region on mobility patterns (Lipset & Bendix, 1959; Blau & Duncan, 1967). Their findings demonstrate that children growing up in rural and urban areas faced substantially lower mobility chances. A recent study used administrative tax data to study intergenerational income mobility across commuting zones in the U.S. (Chetty et al., 2014). The results suggest that mobility chances vary markedly between counties in the U.S. depending on the levels of racial segregation, income inequality, social capital and family stability as well as the quality of primary schools. Other studies use state-to-state variation in legislative practice to demonstrate how the introduction of compulsory minimum schooling increases educational and occupational attainment unevenly (Rauscher, 2015a). In a similar study, Rauscher further showed that assortative mating decreased in the South, but increased in northern states with the introduction of compulsory schooling laws (Rauscher, 2015b). These results emphasize that institutional differences between counties, states and regions may foster or impede intergenerational mobility. While it is impossible with the data at hand to study differences between small- or even medium-sized geographical units, it allows for the differentiation of mobility patterns by the actual region, which is related to the available opportunity structures.[60]

Regional economic specialization, and consequently differences in the composition of the labor force, were particularly high in the United States (Kim, 1998). Regions in which employment in agriculture was traditionally high include, for

[60] Arguably, a cross-classification of region of origin and actual region would have been preferable because it would have allowed us to disentangle differences in social mobility of movers and stayers which are now confounded. Unfortunately, origin region was not available in all datasets.

instance, the Corn Belt states (in particular Iowa, Illinois, Nebraska and Minnesota) in the Midwest or, until the middle of the 20th century, the South where tobacco, cotton and other cash crops were important agricultural products. At the same time, manufacturing was traditionally concentrated in the Midwest and the Northeast. Due to the abundance of iron ore and coal, and the relatively good infrastructure including the waterways linking the Great Lakes with the Atlantic Ocean and various metropolitan centers, the Midwest and the Northeast became centers of urbanization and manufacturing in the United States between the 19th and mid-20th centuries (Kim, 1999).

While economic specialization differed strongly in the beginning of the 20th century, it converged in most employment segments (Kim, 1998, p. 666). With regard to agriculture, in contrast, U.S. regions remained highly specialized due to conditions – i.e. morphological and climate conditions and the concentration of agricultural production units – which advantaged local production in some places but not in others. At the same time, U.S. regions became more similar over the 20th century with regard to manufacturing. The reduction in transportation and communication costs, the invention and development of substitutes for costly or difficult to transport materials, and the increasingly fiercely fought conflicts over unionization and organized labor (Freeman, 1985; Troy, 1990; Gindin, 2012), coupled with the increasing capital mobility (Bluestone & Harrison, 1982), resulted in a decrease in manufacturing in the earlier Manufacturing Belt in the Midwest and the Northeast, and an increase in manufacturing in the South and the West, especially since the 1970s (Ellison & Glaeser, 1997, 1999; Eckes, 2005). While the evolution of local labor markets may be pivotal for regional differences in absolute mobility flows, the great migration of African Americans from the South to the North, or the migration of Americans from all regions to the West, may also have altered mobility propensities due to its impact on the respective labor market composition and the greater mobility chances in larger cities (Lipset & Bendix, 1959; Tolnay & Beck, 1992; Tolnay, 2003). The described economic and demographic changes over the last century nurture the expectation that mobility flows also converged between regions because of the broad harmonization of living conditions across U.S. regions (Fischer & Hout, 2006: Ch. 7).

In fact, mobility rates of regions converged partially across cohorts (Figure 31). Table 32 displays percentage point differences between the average mobility rate (across regions) and the respective regional mobility rate for each cohort and mobility trajectory. Negative figures denote below-average mobility rates and positive numbers denote above-average rates.

With regard to upward mobility, we find that for both men and women upward mobility rates have been particularly low in the southern regions until cohorts born around the middle of the century. In the first cohort, upward mobility was about 4% lower among men and 7% lower among women in the South than on average in the United States. In contrast, upward mobility rates of men and women born before 1924 were 3% and 2% higher in the Northeast. Across cohorts, upward mobility grew more strongly in the South than in the Northeast turning around the initial differences, at least among men. In the most recent cohort, 36% of men in the South, but only 33% of men in the Northeast, were upwardly mobile. In the Midwestern regions, upward mobility rates were almost always below average. In the West, finally, there was no clear trend in upward mobility among men. Upward mobility rates among women in the West were initially 5% above average, but decreased constantly only to recover in the last cohort, again moderately above average.

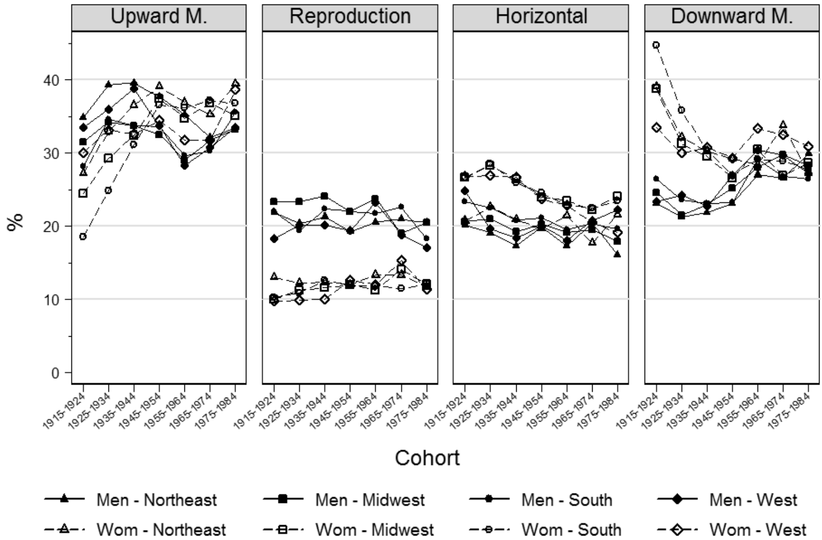
Table 32: *%-point differences between regional and aver. mobility rates*

	Upward Mobility				*Reproduction*				*Horizontal*				*Downward Mobility*			
	MW	*NE*	*S*	*W*	*MW*	*NE*	*S*	*W*	*MW*	*NE*	*S*	*W*	*MW*	*NE*	*S*	*W*
	Men															
1915-1924	-0.5	2.8	-3.8	1.5	2.0	0.5	0.6	-3.1	-1.6	-2.1	1.1	2.6	0.2	-1.3	2.0	-1.0
1925-1934	-1.8	3.3	-1.4	-0.1	2.6	-0.4	-1.4	-0.7	0.4	-1.5	1.9	-0.9	-1.2	-1.4	0.9	1.6
1935-1944	-2.8	3.1	-2.7	2.4	2.1	-0.7	0.4	-1.9	0.3	-1.6	1.9	-0.6	0.3	-0.8	0.4	0.0
1945-1954	-1.8	3.3	-0.8	-0.7	1.3	-1.4	1.3	-1.3	-0.1	-0.4	0.8	-0.3	0.6	-1.5	-1.4	2.3
1955-1964	-1.5	4.7	-0.9	-2.3	1.4	-1.8	-0.6	0.9	0.7	-1.3	1.0	-0.4	-0.6	-1.6	0.5	1.8
1965-1974	0.5	0.9	-1.0	-0.4	-1.3	0.6	2.3	-1.5	-0.8	0.2	0.1	0.5	1.6	-1.7	-1.4	1.5
1975-1984	-0.7	-0.5	1.6	-0.4	1.4	1.4	-0.8	-2.1	-1.0	-2.9	0.7	3.3	0.3	2.0	-1.5	-0.8
	Women															
1915-1924	-0.6	2.2	-6.5	5.0	-0.7	2.3	-0.5	-1.0	1.5	-4.5	1.3	1.6	-0.2	0.0	5.7	-5.5
1925-1934	-0.8	2.9	-5.2	3.1	0.2	1.2	-0.2	-1.2	1.7	-3.9	1.9	0.4	-1.1	-0.1	3.5	-2.3
1935-1944	-0.7	3.4	-2.0	-0.6	0.0	0.7	0.9	-1.6	1.5	-4.1	0.9	1.7	-0.7	0.0	0.2	0.5
1945-1954	0.5	2.2	-0.3	-2.4	-0.1	-0.1	-0.2	0.4	1.0	-3.3	1.6	0.7	-1.4	1.2	-1.1	1.3
1955-1964	-0.1	2.0	1.3	-3.1	-0.8	1.2	-0.2	-0.1	0.8	-1.2	0.2	0.2	0.1	-1.9	-1.2	3.0
1965-1974	1.6	0.0	1.9	-3.5	0.5	-0.2	-2.1	1.8	1.5	-3.0	1.8	-0.3	-3.6	3.3	-1.6	2.0
1975-1984	-2.3	1.9	-0.7	1.1	0.2	-0.1	0.3	-0.4	2.1	-0.5	1.3	-2.9	0.0	-1.3	-0.9	2.2

Note: Refer to Figure 32 and Table 31 for observation numbers and original percentages. Average is constructed simply on basis of the four regional percentages and does not reflect population averages because the latter would be driven by regional sample sizes. Percentage point differences are displayed for four regions: Midwest (MW), Northeast (NE), South (S) and West (W).

With regard to rates of social reproduction, we can only note that reproduction rates were particularly high, although declining, among men from the Midwest, most likely due to the concentration of agricultural and industrial production. Both industries are generally associated with above-average (male) class immobility. Above-average horizontal mobility rates are found among Southern men and women and women in the Midwest. This underlines that horizontal mobility trajectories were mostly driven by mobility from agricultural origins. The contraction of the traditionally strong agricultural sector in both regions caused higher horizontal mobility rates especially among women, who are overall less likely to inherit farm positions.

Figure 31: *Regional differences in outflow mobility in the United States*



Note: Compiled dataset (refer to Ch. 6 for more information). Region samples are comprised of 13,597 (NE), 17,128 (MW), 23,353 (S) and 12,748 (W) men and 8,135 (NE), 10,614 (MW), 16,203 (S) and 8,259 (W) women.

Regional differences in downward mobility very much resembled the inverse pattern of differences regarding upward mobility rates. Across the first three cohorts, downward mobility was above average among men and women in the South, but below average in the Northeast. In the following cohorts, downward mobility rates partially converged because they declined in the South among men and women and, finally, were below the U.S. average among the most recent cohorts of Southerners. However, there is little evidence for growing downward mobility in the Northeast among men and only partial evidence for such an increase among women.

The increase of upward mobility rates in the South and downward mobility rates in the Northeast coincided with two major socio-demographic changes in the respective states. First, the Great Migration substantially affected the population composition through the flight of African Americans from the South to mostly Midwestern and Northeast regions over the course of the last century. Millions of African Americans freed from slavery but haunted by racial violence, economic hardship and political disenfranchisement fled the South up until the end of the 1960s (Mandle, 1978; Fligstein, 1981; Tolnay & Beck, 1992; Tolnay, 2003). While freed from the crassest forms of racial subjugation and oppression, African Americans fleeing the South encountered similar barriers to upward mobility as African Americans in the North, which might have resulted over the first half of the century in the overall decline of upward mobility chances there (Maloney, 2001). At the same time, upward mobility in the South might have increased also due to the outflow of immobile shares of the population. More favorable mobility opportunities in the South, second, might have also resulted from the outstanding economic growth and diversification of the economy in America's South. Since the 1950s, the South rapidly developed from an agricultural into an industrial and, finally, service economy. While the share of the population living in the South grew from 24% in 1950 to 30% in 2000, 35% of all non-farm jobs created in the U.S. were located in the American South (Eckes, 2005 pp. 37, 40f.). Until the 1970s, job growth was predominantly within manufacturing, whereas in later decades, especially since the 1990s, service jobs grew most strongly. Job growth in the South was spurred by the relatively low incomes and comparatively low levels of unionization (Hirsch et al., 2001; Eckes, 2005 p. 41). The changes in mobility experiences, therefore, are likely to reflect the unparalleled economic development, which slowly but constantly increased mobility opportunities, as well as the outmigration of African Americans that were confined to the lowest class positions by racist laws and practices.

The initially high upward mobility chances in the Northeast may be explained by the particularly high population density in the urban centers of New York, Boston, Philadelphia or Pittsburgh. Traditionally, urbanity is associated with higher upward mobility due to the various educational opportunities and the multiplicity of upward mobility opportunities (Lipset & Bendix, 1959; Blau & Duncan, 1967: Ch. 7). The relative convergence of upward mobility rates in the Northeast with the national average may be inversely related to the increase of upward mobility in the South. While the South profited from outmigration in terms of a decline in its particularly immobile population, the northern population increased with members who were again restricted in their upward mobility opportunities. In fact, southern-born African Americans were to a greater extent than northern-born African Americans confined to low blue collar positions even though differences in education were minimal (Lieberson & Wilkinson, 1976). At the same time, the industrial downturn in the heartland of American manufacturing over the last third of the 20th century might have additionally hampered upward mobility rates.

Different social mobility opportunities by ethnicity and race

Regional differences in mobility rates attracted some notice to the question of differences between African Americans and other ethnic and racial groups. As with all social groups, class mobility may differ by race because mobility opportunities differ due to unequally distributed resources (Tilly, 1998; Massey, 2007a). While employers (Bertrand & Mullainathan, 2004), teachers (Lareau & Horvat, 1999), landlords or customers (Nardinelli & Simon, 1990) may discriminate against minority groups on the basis of some ascribed group characteristic (Phelps, 1972; Arrow, 1973) or a taste for discrimination (Becker, 1957), public and private institutions, e.g., laws and regulations, may be constructed in such a way as to benefit whites but disadvantage African Americans (Katznelson, 2005). Similarly, homeowner organizations lobby for zoning regulations in order to keep housing prices up which in turn contributes to persistent residential segregation (Massey & Denton, 1989; Massey, 1993; Wilson, 1997; Cutler et al., 1999; Harris, 1999; Rothwell & Massey, 2009). As a result of lower economic resources, diverse discriminatory practices and high levels of residential segregation with its adverse consequences on schooling and early parenting, African Americans and increasingly (black) Hispanics suffer various forms of disadvantage, which limits their opportunity for occupational and educational attainment and, probably, results in forms of cumulative disadvantages (Hauser & Featherman, 1976; Hauser, 1990; Cameron & Heckman, 2001; Ferguson, 2005; Hout, 2005; Roksa et al., 2007; Wodtke et al., 2011; Wodtke, 2013). The general picture with regard to occupational attainment and class mobility is that differences persist although occupational attainment converged between whites and African Americans over the latter half of the 20th century, particularly during the 1960s and 1970s in which affirmative action policies increased post-secondary educational attainment of African Americans and, arguably, reduced discriminatory hiring practices particularly in the public service (Blau & Duncan, 1967; Duncan, 1969; Featherman & Hauser, 1976; Hout, 1984a; DiPrete & Grusky, 1990; Hout, 2005). Like in most of the studies on the subject, only three types of race and ethnic groups can be differentiated in the following: white, African American and Hispanic[61] American. Because white men are in all cohorts quantitatively the largest group, their mobility rates closely resemble the total mobility rates of Americans.

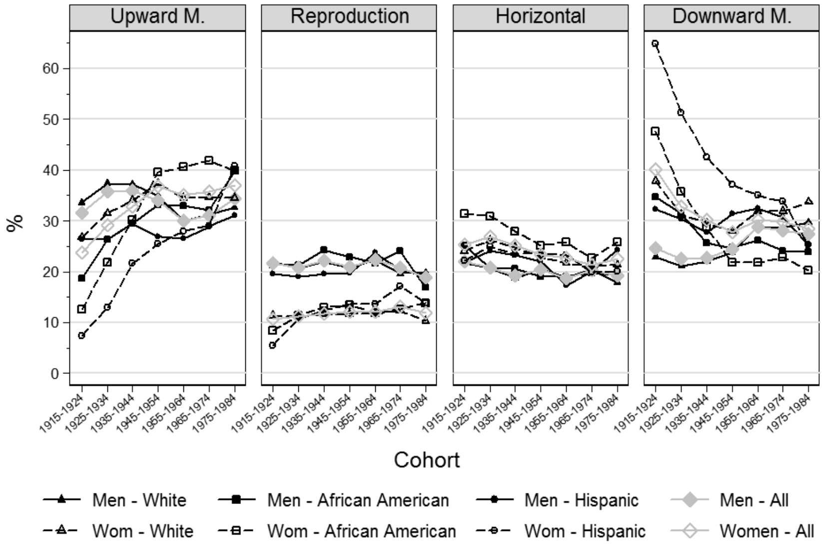
The aggregated mobility trajectories by race and ethnicity are displayed in Figure 32. Across cohorts, mobility rates converged between Americans of different racial or ethnic background. Among white Americans', upward mobility initially increased and then declined much like in the total sample. Consequently, upward mobility in the first and the last cohort account for around 34% of intergenerational trajectories of white men. Among African-American men, in contrast, upward mobility was severely limited in the early cohorts, accounting for only 19% of the intergenerational trajectories of those born before 1924. Over the following three cohorts, upward mobility rates grew linearly among African Americans. 33% of African Americans born immediately after World War II (1945-1954) arguably profited most indirectly and directly from affirmative action programs during their adolescence and early career phases. While upward mobility rates remained stable over the next two cohorts, they only increased in the last cohort to 40%. Additionally, upward mobility rates also increased among Latinos, albeit not linearly. While 26% of Hispanic men of the oldest cohort experienced upward mobility up until the time of the interview, it was 31% in the last cohort. The pattern of upward mobility among Hispanics was similar to that of white Americans and thus resembled the general male pattern discussed above. After an initial increase of upward mobility between the first and the third cohorts from 26% (white: 34%) to 30% (37%), mobility rates moderately declined to below 27% of those Hispanics (whites) born between 1955 and 1964. Finally, upward mobility rates grew again to 31% (33%). Of all ancestry groups, Hispanics least frequently experienced mobility in the most recent cohorts.

There are marked differences in the level but not the pattern of upward mobility rates between women from different ethnic or racial backgrounds. Again, mobility rates in the early cohorts differ strongly by ancestry but converge across cohorts through a linear increase of upward mobility rates which is strongest among Hispanic and African-American women. While only 13% of African-American women and 7% of Hispanics, but 27% of white women born before 1924 were upwardly mobile, upward moves accounted in the most recent cohort for 35% of white, 40% of African-American and 41% of Hispanic women's intergenerational trajectories. While Hispanics experienced the most frequent upward mobility of all race and ethnic groups in the most recent cohort, upward mobility

[61] Although not quite correct, I use Hispanic and Latino or Latina interchangeable to describe persons whose origins or ancestries are from countries of Latin America throughout this work (Jaimes et al., 2013).

rates peaked among African-American women born between 1965 and 1974 (42%) and white female baby boomers born between 1945 and 1954 (37%). Thus, upward mobility increased among all groups and strongest among those groups which started with the lowest upward mobility rates in the oldest cohorts. While upward mobility rates converged between groups, the rank order between groups changed over the last century. Across cohorts, the percentage point difference declined from a 27% difference between white men and Hispanic women to a 10% difference between Hispanic men and women in the last cohort.

Figure 32: *Total mobility rates by race and ethnicity in the United States*



Note: Compiled dataset (refer to Ch. 6 for more information). Ancestry samples comprise of 53,517 (W), 9,401 (AA) and 3,908 (H) men and 31,912 (W), 7,745 (AA) and 3,554 (H) women.

While differences in upward mobility rates are drastic, little difference exists with regard to status immobility. Declines in class reproduction are rather modest among African-American and white men. In the first and last cohorts, around one-fifth of white, African-American and Hispanic men entered into their fathers' classes. Studying reproduction between origins, it is clear that social reproduction decreased most among unskilled manual and service occupations among both African-American and white men.[62] Across all cohorts, however, status reproduction meant different things for men of different race or ethnicity. While around 24% of immobile whites entered the unskilled working classes, the same was true for 58% of African Americans and 38% of Hispanics in the sample. For women, the change in social reproduction rates was more pronounced and differences between groups were stronger. While 11% of white women in the first and 10% in the last cohort achieved class immobility, class reproduction increased from initially 8% among African-American women and 6% among Hispanic women to 14% for both in the last cohort. Again class immobility also meant different things among women from different races or ethnicity. Across the sample, immobility led 31% of white women, but 70% of African-American women and 48% of Hispanic women into either of the two unskilled working classes. Even in the last cohort, around 62% and 59% of immobile African-American women and men entered in the lowest working classes. Thus, social reproduction means different things for white and African Americans.

Finally, downward mobility rates differed strongly by racial and ethnic group. Traditionally, downward trajectories were least frequent among white Americans. Only 23% of white men born before 1924 were downwardly mobile. While the former remained stable until the cohort of men born between 1945 and 1954 (24%), they increased over the following three cohorts to nearly 30% in the last cohort. Over the same period, African-American and Hispanic men experienced declining downward mobility rates. In the last cohort, less than one in four African-American men (24%) and one out of four Hispanics (25%) were downwardly mobile. Thus, the overall increase of downward mobility experiences in cohorts born in the second half of the 20th century were mostly driven by the increasing downward mobility of white Americans. While downward mobility rates for all groups were markedly higher among women as compared to men in the older cohorts, they converged over the last century. In the first cohort, 38% of white women, 48% of African-American women and 65% of Hispanic women experienced downward mobility. Across cohorts, the respective rates declined to 28%, 22% and 37% of female baby boomers born between 1945 and 1954. While downward mobility rates increased over the following cohorts to 34% of white women born between 1975 and 1984, they further declined among African-American and Hispanic women. In the most recent cohort, only every fifth African-American woman (20%) and every fourth Hispanic woman were downwardly mobile.

[62] Observations are too small to reliably interpret origin-specific outflow rates among Hispanic Americans.

Table 33: DI for men (lower triangle) and women (upper triangle)

		White	*African-American*	*Hispanic*	*White*	*African-American*	*Hispanic*	
	White		Women		0.0	20.9	20.1	1945 - 1954
	African-American				27.2	0.0	9.7	1945 - 1954
	Hispanic	Men			16.9	15.0	0.0	1945 - 1954
1915 - 1924	White	0.0	40.7	32.7	0.0	17.8	19.8	1955 - 1964
1915 - 1924	African-American	37.5	0.0	19.9	26.3	0.0	10.6	1955 - 1964
1915 - 1924	Hispanic	17.8	21.2	0.0	16.7	10.5	0.0	1955 - 1964
1925 - 1934	White	0.0	33.9	31.6	0.0	16.1	16.3	1965 - 1974
1925 - 1934	African-American	33.1	0.0	18.1	25.8	0.0	11.2	1965 - 1974
1925 - 1934	Hispanic	15.3	22.8	0.0	12.0	15.4	0.0	1965 - 1974
1935 - 1944	White	0.0	26.1	23.9	0.0	17.5	12.4	1975 - 1984
1935 - 1944	African-American	29.7	0.0	8.0	23.9	0.0	7.5	1975 - 1984
1935 - 1944	Hispanic	13.5	19.1	0.0	11.5	13.6	0.0	1975 - 1984

Note: Comparison of the destination class distribution of different ancestry groups within cohorts. For sample sizes refer to Figure 33 and Table 31.

Much like regional differences, the observed trends point towards a convergence of intergenerational mobility rates across ancestry groups. While this trend is positive, the road towards racial and ethnic equalization regarding class attainment seems to still be long. Table 33 presents the dissimilarity indices obtained by comparing the (destination) class distribution between men (lower triangle) and women (upper triangle) of different racial and ethnic groups within each cohort. While class distributions became more equal across the early cohorts especially, convergence somewhat stalled in more recent cohorts and strong differences particularly between African Americans and whites remained. Although the overall dissimilarity between these groups decreased markedly from 38% among men and 41% among women in the first cohort, still one in four African-American men (24%) and roughly one in five African-American women (18%) would have to change the social position to equalize the class distributions. The same holds true for only every eighth Hispanic man or woman (12%). The difference between African Americans and whites is mostly due to the low shares of African Americans in the professional class, but high shares of unskilled worker positions.

Table 34: Ratio of up- to downward mobility by gender and ancestry

	Men						*Women*					
	White		*African-American*		*Hispanic*		*White*		*African-American*		*Hispanic*	
	LG	*SH*	*LG*	*SH*	*LG*	*SH*	*LG*	*SH*	*LG*	*SH*	*LG*	*SH*
1915-1924	3.01	1.36	3.10	0.49	4.00	0.74	0.63	0.71	1.25	0.25	0.00	0.12
1925-1934	4.62	1.61	2.63	0.77	1.33	0.83	0.85	1.02	2.00	0.58	0.60	0.24
1935-1944	2.78	1.57	3.04	1.05	1.60	1.01	0.91	1.17	5.00	0.96	0.20	0.54
1945-1954	1.94	1.42	5.00	1.22	1.07	0.83	1.15	1.35	2.65	1.76	0.47	0.71
1955-1964	1.13	1.03	2.17	1.21	0.63	0.84	0.76	1.12	2.59	1.81	0.83	0.80
1965-1974	1.25	1.07	2.75	1.24	0.65	0.98	1.02	1.10	2.07	1.82	0.75	0.87
1975-1984	0.96	1.11	0.47	1.84	1.00	1.25	0.73	1.06	2.38	1.94	1.83	1.59

Note: For sample sizes refer to Figure 33 and Table 31. LG = Long vertical mobility trajectories; SH = short vertical mobility trajectories.

While aggregated mobility rates and class distributions converge across cohorts, the detailed analysis of vertical mobility can inform about the qualitative differences between vertical mobility rates across racial and ethnic groups. For that purpose, we again differentiate between long-range and short-range vertical mobility (ref. Ch. 8.3). The change in the quotient of downward to upward mobility incidences among long- and short-range mobile describes the trend in mobility flow directions (Table 34). The change in the quotient of long-range to short-range mobility within each of the directions informs us about the relative openness (Table 35).

Long-range upward mobility decreased relative to downward mobility unequally among men of different ancestry groups. For every white, African American or Hispanic born before 1924 who experienced long-range downward mobility, three white Americans, three African Americans and four Hispanics experienced long-range upward mobility. In the most recent cohort, this ratio equaled one among white Americans and Hispanics, but only one-half among African-American men. Thus, more African-American and Hispanic men are long-range downwardly mobile than upwardly mobile in the last cohort. Over the same period, short-range upward mobility increased relative to downward mobility among African Americans and Hispanics, but decreased among whites. The similar sized ratios of African Americans, white Americans and Hispanics hide the pronounced differences between the races in the first cohort. While 12% of white men from the highest class origins were downwardly mobile and 15% were upwardly mobile, the same is true for 52% and 5% of African-American men.

Among women, in contrast, long-range upward mobility increased relative to downward mobility, particularly among African Americans and Hispanics. While the ratio also increased among white women, it remained below one, attesting that white women were in most cohorts more likely to be downwardly mobile than upwardly mobile if they were long-range mobile. Similarly, short-range mobility trajectories more frequently lead women from lower to higher positions in successive birth cohorts than the other way round. Interestingly, the ratio of upward to downward mobility was most favorable for African-American men born between 1945 and 1954 and for women one decade earlier. Arguably, these cohorts grew up and entered the labor market in times of expanding affirmative action policies following the civil rights movement from the mid-1950s to the late 1960s.

Table 35: Ratio of long to short-range mobility, gender and ancestry

	Men						*Women*					
	White		*African-American*		*Hispanic*		*White*		*African-American*		*Hispanic*	
	UP	DW	UP	DW	UP	DW	UP	DW	UP	DW	UP	DW
1915-1924	0.15	0.07	0.12	0.02	0.13	0.02	0.06	0.07	0.09	0.02	0.00	0.03
1925-1934	0.17	0.06	0.13	0.04	0.15	0.09	0.07	0.08	0.08	0.02	0.11	0.04
1935-1944	0.18	0.10	0.14	0.05	0.14	0.09	0.07	0.09	0.12	0.02	0.04	0.11
1945-1954	0.15	0.11	0.14	0.03	0.13	0.10	0.07	0.09	0.10	0.07	0.07	0.10
1955-1964	0.13	0.12	0.11	0.06	0.10	0.13	0.07	0.11	0.10	0.07	0.09	0.09
1965-1974	0.10	0.09	0.16	0.07	0.08	0.12	0.08	0.09	0.08	0.07	0.08	0.09
1975-1984	0.09	0.10	0.04	0.15	0.08	0.09	0.08	0.11	0.09	0.07	0.10	0.08

Note: For sample sizes refer to Figure 33 and Table 31.

As an indicator for the experienced openness for intergenerational mobility Table 35 presents the ratio of long-range to short-range mobility among upwardly and downwardly mobile Americans. Among men of all racial and ethnic groups, long-range relative to short-range upward mobility decreased, while long-range relative to short-range downward mobility increased. The respective ratios among white men changed from .15 and .07 in the first cohort to .09 and .10 in the last. Similarly, the long- to short-range upward mobility ratio declined from .13 to .08, while the respective downward ratio increased from .02 to .09 among Hispanics. Among African Americans, in contrast, the upward ratio increased from .12 to .16 between the first and next to last cohorts from .12 to .16, only to decrease in the most recent cohort to a staggering .04. At the same time, downward mobility from highest to lowest classes increased relative to upward mobility among African-American men most strongly from initially .02 to .15 in the most recent cohort.

Again, we observe a moderately more positive picture among women. Among upwardly mobile white women, the ratio of long-range to short-range trajectories increased moderately from .06 to .08 and increased among Hispanic women from none to .1, whereas it equaled .09 among African-American women in both the oldest and the most recent cohort after an increase to .12 in the third cohort. At the same time, however, long-range trajectories became more frequent relative to short-range demotions. The ratio grew among white women from .07 to .11, among African-American women from .02 to .07 and among Hispanic women from .03 to .08 between the first and the last cohorts. The general, and for minorities particularly strong, decline of long-range relative to short-range upward mobility over a period of increasing upward mobility, coupled with the increasingly long-range downward mobility, points towards growing rigidities that especially block the intergenerational mobility of minority lower class members, while it unmakes the upward mobility gains of preceding generations.

The experienced overall increase of upward mobility and decline of downward mobility among most ancestry groups in the American population, and the change in the composition of these vertical patterns, suggest that while the United States in aggregate became more open and equal across the last century, it became less open for Americans at the bottom of the class structure in the last decades. Gender, regional and racial differences in aggregated mobility experiences converged across birth cohorts, most likely driven by the equalization of living conditions and opportunities, especially for minorities and between genders, but also by the more balanced economic developments offering similar opportunities in different regions. Similarly, social mobility differences between gender and ancestry groups declined over cohorts. Nevertheless, African Americans and partially Hispanics still experience less fortunate prospects for class attainment and are frequently condemned to intergenerational immobility in the lowest working classes. While this is in general a positive picture, it is also evident that the overall increase in social mobility chances stopped with the baby boomers among men and decelerated among women born after World War II.

9.4 The evolution of segment-specific outflow mobility patterns

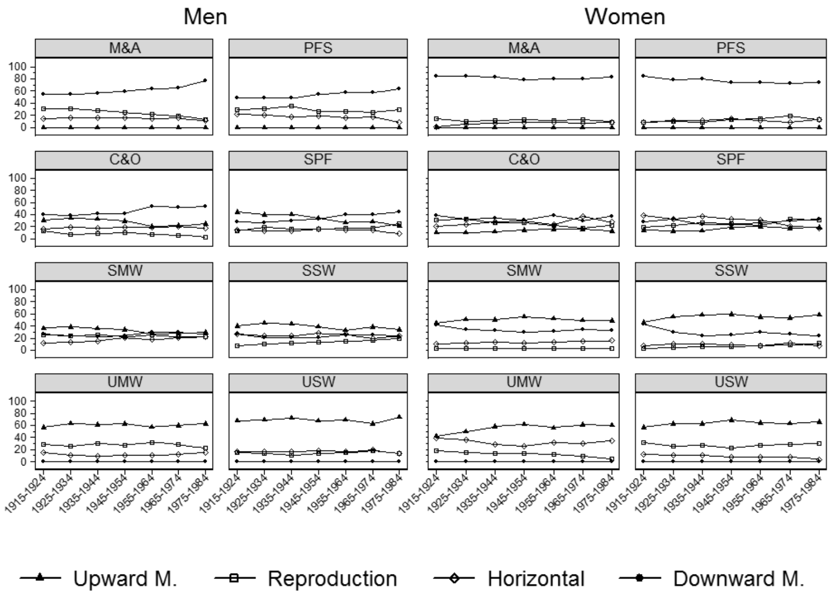
The analysis of the aggregated rates showed that mobility experiences increased among Americans over the last century. In the following section, a disaggregated perspective will be taken to concentrate on the evolution of horizontal mobility across cohorts. The investigation has to restrict itself to the full sample of Americans without further differentiating men and women by race, ethnicity or region. Any further disaggregation would render it impossible to differentiate substantial changes in mobility rates from mere erratic fluctuations due to sparse cells. Because of the numerical dominance of white Americans, the results can be seen as reflecting the mobility experiences of mostly white Americans. Initially, aggregated mobility flows from the highest and lowest class backgrounds will be studied in detail to give examples for the following discussion of segmental mobility patterns. Figure 33 displays the four mobility trajectories disaggregated by origin class for men (two left columns) and women (two right columns). To substantiate the upward and downward mobility flows and relate the origin-specific outflows to the substantial decline in quality of mobility patterns, I will further employ the constituting origin-destination flows where appropriate. The disaggregated full origin to destination tables are presented in Table A. 4 for men and in Table A. 5 for women.

There are two very different developments of mobility patterns in the highest industrial and post-industrial classes. While reproduction declined for men and women with industrial middle class backgrounds, it increased among those from postindustrial origins. At the same time, social reproduction declined in the former but increased or stagnated in the latter over the last century. Among men from managerial backgrounds, social reproduction declined markedly from 30% in the first cohort to 13% in the most recent cohort. Even if the younger age of the most recent cohort is taken into account by comparing the first with the next to last cohort born between 1965 and 1974, only 19% of men with managerial backgrounds remained immobile. At the same time, horizontal mobility into the professional class accounted for a nearly equally high share of 15% in all but the last cohort, in which lateral trajectories declined to 10%. Consequently, the incidence of downward mobility trajectories among men from managerial backgrounds increased from initially 55% to 76% in the last cohort. The conjecture that at least a portion of the high increase in downward mobility is due to the younger age is somewhat supported by an unusually high rate of downward mobility from managerial offspring into clerical positions. While this flow in other cohorts accounted for around 5% of American men, 9% of men from managerial backgrounds entered clerical positions in the most recent cohorts. Arguably, those men may still experience some intragenerational upward mobility from lower clerical into managerial positions. Additionally, downward mobility rates in the most recent cohort into skilled and unskilled service worker positions are comparatively high (both 14%, while normally far less than 10%), which may similarly precede further mobility later in life.

A similar evolution of mobility patterns is observable among women from managerial backgrounds. While women experienced lower reproduction than men, immobility decreased only moderately ranging between 14% in the first cohort and 13% in the next to last cohort. Again, immobility declined more markedly in the most recent cohort to 9%. Across the same time period, however, lateral mobility into the professional class continuously increased from initially 2% to 8% in the most recent cohort. As a result, downward mobility declined moderately across cohorts of women from managerial backgrounds from 85% to 83%. Interestingly, the direction of downward mobility flows changed substantially. While mobility into clerical positions decreased from 38% to 17%, mobility into semi-professional positions increased from 15% to 30%. The only other class destination that became substantially more frequent among women from managerial backgrounds was that of skilled service workers. Mobility flows into the latter class grew from 2% to 11%. Summing up, we observe a substantial downgrading of mobility prospects of sons of managers and administrators, but at the same time an upgrading of women's mobility flows from similar positions.

Among men from the highest post-industrial origins, mobility prospects also obfuscate across cohorts, although to a much lesser extent than those of men with managerial origins. Class immobility was mostly stable with 30% in the first and last cohorts, whereas lateral mobility declined moderately between the first and the next to last cohorts from 22% to 18%, only to decrease among men from the most recent cohort to 8%, most probably again due to the younger age. Downward mobility trajectories were experienced by roughly every second man from professional origins in each of the first three cohorts, but increased thereafter to 57% in the next to last cohort and finally to 63% in the most recent cohort. While downward mobility into the manual working classes and the unskilled service working class either remained stable or declined, mobility into the semi-professional and the skilled service classes increased from 13% and 16% to 21% in the last cohort. Consequently, intragenerational mobility may still carry the sons of professionals back into the highest of the post-industrial or industrial classes. The picture for women from professional backgrounds is mostly reversed. While levels of social reproduction were also in more recent cohorts still lower compared to men's, they continuously increased from 8% to 18% in the next to last cohort only to again decrease in the youngest cohort to 13%. Over the same period, lateral mobility into the managerial class increased from initially 8% to finally 13%. Consequently, incidences of downward trajectories declined across cohorts by ten percentage points to 74%. Women also experienced an upgrading of their downward mobility patterns away from lower industrial classes towards higher post-industrial classes. While downward mobility flows into the clerical class declined from 36% to 14% and flows into unskilled manual positions ebbed from 4% to virtually none, mobility into semi-professional positions increased from 22% to 37% between the first and the last cohort.

Figure 33: Outflow rates by social origin for men and women, U.S.



Note: Compiled dataset (refer to Ch. 6 for more information). Men: N= 41,928 and Women: N= 33,697.

At first sight, mobility patterns seem to be characterized by a continuous upgrading among the sons of unskilled manual workers. While upward mobility rates increased between the first and last cohort from 57% to 63%, social reproduction declined modestly from 29% to 28% in the next to last cohort and, more markedly, in the last cohort to 22%. Across cohorts, lateral mobility into unskilled service positions initially declined from 15% in the first cohort to 9% in the third cohort, only to grow over the last two cohorts to again 15%. This glossy picture, however, is obfuscated by the composition of upward mobility. Driven by structural change, upward mobility into managerial positions declined strongly from 8% to 4% and trajectories into skilled manual positions fell from 21% to 16%. Over the same period, we observe no change with regard to mobility into the professional class, but mobility flows into semi-professionals and skilled service worker positions increased from 4% to 10% and from 6% to 14%. Thus, while a portion of upwardly mobile men with unskilled manual backgrounds do attend higher post-industrial positions now than they would have a few generations ago, upward mobility into the highest (industrial) classes vanished.

A moderately more positive mobility pattern emerged among women from unskilled manual backgrounds. Upward mobility rates increased more strongly from 42% to 60%, whereas social reproduction declined consistently from 19% to 5%. Horizontal mobility into unskilled services, however, declined only moderately from 39% to 35% so that still every third daughter of an unskilled manual worker ended up in the unskilled working class. As noted before, the limited decrease is due to the higher reproduction rate of African-American women from these origins. Nevertheless, the changing composition of upward mobility patterns which grew at the expense of class reproduction is highly favorable. Due to new opportunities driven by structural change, women with unskilled manual backgrounds increasingly entered all higher post-industrial classes. The share of women entering either the professional class or the semi-professional class increased from 1% to 3% and from 4% to 19%. Similarly, mobility into skilled services grew from initially 7% to 11%. Thus, the mobility flows for women, but not for men, from the lowest industrial positions are characterized by a general upgrading.

Mobility patterns among the unskilled service workers at the bottom of the post-industrial class distribution, finally, are similarly different for men and women. Among men we observe a non-linear evolution of mobility patterns. Upward mobility rates increased between the first and the third cohort from 68% to 72%, only to decline in the following cohorts to 63%. In the final cohort, however, more than two-thirds of sons of unskilled service workers (74%) were upwardly mobile until the time of the interview. Interestingly, social reproduction remained mostly stable around 15%, only to increase in the next to last cohort to 20% and decline in the most recent cohort back to 13%. This marked cohort-to-cohort change is at least in part due to the low number of fathers in that class. While horizontal mobility rates fluctuated around 17% in most cohorts, lateral trajectories into unskilled manual positions only accounted for 13% of intergenerational trajectories in the most recent cohort. The compositional change of upward mobility patterns further emphasize that mobility patterns exacerbated over the last century among men from these backgrounds. While upward mobility into managerial, clerical and professional positions declined from 14% to 4%, from 9% to 5% and from 7% to 3%, short-range upward mobility rates into skilled service positions exploded across cohorts from initially 5% to finally 21%. Thus, much like among the sons of unskilled manual workers, we also find here a general increase of upward mobility trajectories which lead, however, to less favorable positions than they used to in earlier generations.

Mobility patterns evolved more favorable among women from unskilled service origins. While upward mobility increased by nearly ten percentage points to 66% across cohorts, lateral trajectories into unskilled manual positions declined markedly from 11% to 4%. At the same time, however, social reproduction differs little between the first and the last cohorts. While it declined markedly between the first and the fourth cohorts from 32% to 23%, it again increased to 31% among women from unskilled service origins in the most recent cohort. That mobility patterns nevertheless evolved favorably is not only due to the growth of upwardly mobile trajectories, but also due to the linear upgrading of those trajectories across cohorts. Mobility rates into managerial, professional and semi-professional classes increased across cohorts, whereas upward mobility into clerical positions decreased.

In total, there are three commonalities in these four mobility profiles which very much represent the occupational structural shift in the (destination) class distribution observed earlier and can be generalized to most other class origins. First, generally women but not men experienced more favorable mobility patterns in more recent than in older cohorts. Second, the composition of upward and downward mobility patterns among women upgraded overall. Third, mobility patterns of men and women from post-industrial classes are increasingly characterized by higher reproduction and higher upward mobility rates than vertically equal industrial positions.

Table 36: *Changing mobility between first and last cohort (men/women)*

		Origin Class									
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PB	FA
Ouflows	*UP: bw segments*	n.d.	–/+	+	+	n.d.	–	–	–	–	+/–
	UP: in segments	n.d.	–	–	–	n.d.	–/+	+	+	n.d.	n.d.
	Reproduction	–	–	–	–	–/+	+	+	–	–	–/+
	Horizontal	–/+	+	+	+/–	–/+	–	–	–	+	+
	DW: bw segments	+	+	+/–	n.d.	+/–	–	–	n.d.	+/–	–
	DW: in segments	+/–	–	–	n.d.	+	+	–	n.d.	n.d.	n.d.

Note: Derived from Table A. 4 and Table A. 5. UP denotes upward, DW denotes downward mobility. Cell entry prior to the slash represents the mobility trend for men and the entry following the slash the trend for women. n.d. = not defined; plus indicates increasing mobility flows, minus indicates declining mobility flows.

To concentrate on segmental differences within mobility patterns, Table 36 summarizes the aggregated mobility flows by origin class and differentiates upward and downward trajectories in between-segment and within-segment mobility patterns. A '+' indicates increasing mobility between the first and the last cohorts, whereas a '–' indicates declining mobility rates. Cells denoted by 'n.d.' are by design impossible (not defined). If mobility rates from men and women differ, a slash separates the trend for men (left entry) from that of women (right entry).

Unsurprisingly, the change of mobility rates in the U.S. was similarly driven by post-industrialization, as was the case in Germany. To the extent that industrial middle classes contracted and post-industrial middle classes expanded, upward mobility rates between segments increased only among men and women from the industrial segment, but decreased among those with post-industrial class backgrounds. In contrast, between-segment upward mobility rates decreased for those from post-industrial class origins, but grew among men and women from industrial class origins. The only exception from that pattern constituted men with clerical or semi-professional backgrounds. The former became less likely to be upwardly mobile between segments, i.e., into the professional positions, probably due to the increasingly constrained economic funds available for investing in children's educational attainment in times of increasing educational costs (Roksa et al., 2007, p. 170). The decline of men from semi-professional origins to be mobile into managerial positions, second, is likely to result from the continuous contraction of that destination class.

The trend of class immobility rates in terms of reproduction and horizontal trajectories differed between segments. While social reproduction increased among most but not all individuals from post-industrial backgrounds, horizontal mobility declined. With regard to industrial backgrounds, the opposite is true. Social reproduction consistently declined, but horizontal mobility rates increased in most but not all groups. Social reproduction among sons of professionals decreased in the last cohort, likely due to the younger age in which class destination is measured. Similarly, social reproduction decreased among unskilled service workers. However, as described further above, this decrease is neither quantitatively large nor linear in trend, but rather underlines the somewhat problematic number of cases in the most recent cohort. Similar arguments have been made regarding the exceptions to the rule of increasing horizontal mobility rates among industrial backgrounds and declining rates among post-industrial backgrounds. In any case, deviations are minimal or, arguably, little more than age effects.

Finally, the evolution of downward mobility rates were also shaped by the occupational structural change, although not to the same extent as upward mobility and immobility. While downward mobility between segments increased among almost all industrial origins, it decreased among people from post-industrial origins. At the same time, downward mobility within segments decreased among most industrial origins but increased within most post-industrial groups. Exceptions were here, first, the decrease of female trajectories from skilled manual origins and increasing male downward mobility from professional backgrounds. While the latter case has been discussed above and may represent an age effect, women from skilled manual origins increasingly successfully avoided mobility into unskilled service positions but, instead, entered the expanding semi-professions. With regard to within-segment downwardly mobile trajectories, second, we find, as reported earlier, that the increase among men from managerial origins who entered lower administrative ranks is likely to only precede later career mobility into managerial positions. After all, the positions within large bureaucracies are frequently embedded in internal labor markets which allow for orderly career progression based among other things on firm tenure (Althauser & Kalleberg, 1981; DiPrete, 1989). Finally, both men and women from skilled service worker origins became less likely to enter unskilled service positions, which is in the case of men an unsubstantial difference of one percent between the first and the last cohorts, whereas among women, the difference is substantially higher. However, in the latter case, it is clear that although downward mobility rates were substantially smaller in the most recent (22%) than in the first cohort (29%), it increased substantially since the third cohort from 18% to 25%, only to decline in the last cohort. Thus, the trend points rather towards expanding than declining downward mobility rates.

Both the four mobility profiles and the comparison of horizontal and vertical mobility patterns give testament to how mobility flows have transformed under the pressure exerted by social change over the last century. The segmental differences in reproduction, but also upward and downward mobility patterns are as much a result of the different opportunity structures as they are outcomes of changing mobility strategies. Increasingly, individuals and their parents can and have to invest into ever higher educational credentials to achieve status maintenance or upward mobility into the (semi-)professionals. Those who cannot compete either because they lack the economic resources or the opportunities to develop their capabilities to the fullest increasingly fall into (sub-standard) post-industrial working class segments. Before the analysis switches from mobility experiences to the inequality relations of mobility chances and questions concerning social fluidity in both societies, a brief summary will reiterate the main results of the foregoing chapter.

9.5 Summary

In the foregoing chapter, the IPICS scheme proved its usefulness for the analysis of the class structure and intergenerational mobility trends in the United States. Industrialization and urbanization strongly shaped the origin distribution in the U.S., whereas post-industrialization affected particularly the destination class distribution. While farm origins decreased across cohorts, individuals increasingly originated in post-industrial middle classes in the latter part of the 20th century. Over the same time period, the composition and relative size of working class origins remained remarkably stable, most likely because origins are only measured by father's class. In contrast, the class distribution among men and women in the U.S. changed substantially over the 20th century. Its evolution is characterized by an expansion of post-industrial and a contraction of some but not all industrial middle classes. At the same time, we observe pronounced changes regarding the composition of the working classes. While manual classes diminished across cohorts, service working class positions grew unevenly across time. Among early cohorts, lower service working class positions contract, however those positions expand in the final phase characterized by deindustrialization. Following the growing importance of educationally intensive post-industrial positions, educational attainment of men but especially of women rose substantially across cohorts.

Given these very strong structural changes, we observe comparatively high levels of absolute mobility. Compared to Germany, the level of self-recruitment (outside farming) and social reproduction observed in the U.S. was usually lower. However, the overall patterns of mobility seem to be much the same. In terms of mobility, IPICS classes are vertically differentiated and horizontally related. Mobility frequently happens between either working classes or middle classes but less frequently bridges the divide between lower and higher classes. While horizontal mobility is in various cases one means of status maintenance for the offspring of fathers in industrial classes, mobility flows are especially important for status maintenance between managerial and (semi-)professional classes. Additionally, we find strong and substantive gender differences. Men are more likely to be mobile into male industrial or the highest post-industrial classes, whereas women are likely to move to clerical, semi-professional or service working classes. While these gender differences somewhat decline in more recent cohorts, due to men entering the service working classes and women entering the professional classes, differences in the class distribution of men and women are still very pronounced.

The aggregated mobility patterns very much resembled the ones found for Germany. Upward mobility increased among Americans of both genders initially but decreased over the middle cohorts only to remain mostly stable or increase only moderately in the most recent cohorts. At the same time, social reproduction decreased moderately among men but increased among women, whereas horizontal mobility between industrial, post-industrial and independent classes declined among both genders due to the contraction of the independent classes. Finally, downward mobility initially decreased followed by an increase after the end of WWII and a moderate decrease in the last cohort. While the more positive development among American women lead to a reduction of gender differences in mobility rates over the 20th century, mobility experiences are less favorable, especially for men born in the latter half of the century as compared to those born in the middle of the century. Interestingly, there is little change with regard to regional differences other than a broad convergence of regional mobility rates across cohorts due to the more favorable development in the South and a regression to the mean in the Northeast, most likely driven by the changing composition of regional populations following the Great Migration and the continuing equalization of living conditions especially for minorities and also the more balanced economic development.

More pronounced were differences in mobility rates with regard to race and ethnicity. Mobility rates differed strongly between white and African Americans as well as Hispanics in the early cohorts. Compared to whites, Hispanics and African Americans born at the turn of the 20th century experienced very rarely upward mobility and high rates of downward mobility. Across the 20th century, however, the decreasingly favorable mobility patterns among whites and increasing mobility rates among American minorities resulted in converging aggregate mobility patterns, although substantial differences especially between African Americans and whites remained. While the reduction of racial and ethnic differences in aggregated vertical mobility rates can be appreciated, there is little reason to expect increasing convergence from absolute mobility patterns alone. Widening inequality has its counterpart in the reduced distances that intergenerational movements are able to bridge. Especially in younger cohorts, African-American men experience a relatively strong decrease in both relative upward mobility experiences and relative long-range mobility. Women, in contrast, experience more long-range than short-range upward mobility today than they would have were they born at the beginning of the 20th century. This, of course, comes with the caveat that also long-range downward mobility became more frequent relative to short-range trajectories in the same direction.

10 Relative mobility in Germany and the U.S.

One of the most noteworthy results of the foregoing study of absolute mobility was that the change in social origins, class destinations and absolute intergenerational mobility followed similar patterns in both countries under study. The unique possibility of studying social mobility from a comparative perspective over the *longue durée* revealed that although differences between the United States and Germany are observable, the trends in each country evolved in parallel. This is of course no historical accident but the outcome of similar economic, political and social developments that took place in Germany and the United States over most of the 20th century and similarly shaped the opportunity structure for mobility. Arguably, the similarity is also due to the employed IPICS classification scheme because it better maps compositional changes that otherwise remain hidden by merging growing and declining classes together.

While the similarity of absolute mobility rates are nothing short of astonishing, the change in the marginal distributions is also noteworthy. With regard to origins, little change at all can be found. Albeit destination distributions evolve exactly how we would expect them given that they cover periods of post-industrialization and deindustrialization, origin distributions shift only punctually from (agricultural) independent classes to post-industrial middle classes. Because of the relative stability of the origin distributions, the change in mobility patterns is truly subject to the occupational change over the last four decades and indirectly via the importance of entrance occupations for later class attainment through the change that occurred since the 1930s when the first cohort entered the labor market. The question that I now tackle is whether the forces that presumably have created the parallel development of mobility patterns in the U.S. and Germany also affected the openness of the respective societies and, if so, again in a similar or different way.

Social fluidity or relative mobility is a measure for a society's openness regarding its relative permeability for members from different social classes (Goodman, 1969; Hout, 1983; Wong, 2010; Agresti, 2012; von Eye & Mun, 2013). It is usually expressed in terms of odds ratios observable in any given mobility table. In the simplest and most general case of a 2 by 2 table with two destinations and two origins, the odds ratio provides information about the odds of individuals entering destination B instead of A given that they are from origin A, in terms of

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the same odds of individuals from origin B. If the odds ratio equals one, the odds of individuals reaching rather A than B are the same for each origin and are therefore independent of the origin. If they are larger than one, then individuals of origin A are more likely to enter B than A in direct comparison to individuals from origin B. If they are lower than one, it works in the opposite direction: individuals with background A are less likely to enter A rather than B compared to individuals from origin B. Two attributes of the odds ratios are immensely useful for the analysis of social fluidity. First, odds ratios are margin insensitive, which means nothing else than that any linear transformation of either the origin distribution or the destination distribution will have no effect on the odds ratio because they cancel each other out once the odds ratio is calculated. Second, the odds ratio is a relational measurement in the sense that it always describes the relative mobility chances of one group in terms of another. Consequently, any change in social fluidity means not only the increase of relative mobility chances of one group, but also the relative decrease of mobility chances of another group. While one can model the odds ratios, i.e. the relative mobility chances, between selected origins and destinations, one can also model all odds ratios, i.e. social fluidity, in a given mobility table at the same time.

The problem that arises with social fluidity is then how to interpret multiple odds ratios. The obvious solution would be to take either of two extreme forms that relative mobility chances can take as a reference frame. Instead of completely unequal mobility chances, conditional independence is normally chosen as a reference frame which posits that all odds ratios pertaining to the origin-destination association equal one so that the odds to be mobile are completely independent of origins. Another interesting contrast can be created by comparing social fluidity across cohorts, countries, gender or subgroups because it allows a direct estimate of the respective differences in fluidity. In the following, I will compare social fluidity first within countries between classes through the use of topographical models (Hauser, 1978; Erikson & Goldthorpe, 1992). In a second step fluidity will be compared between cohorts and, where suitable, across subgroups to understand how social fluidity changed across time and differs between social groups (Xie, 1992). More detailed information on the mathematical foundations of the employed methods can be found in Ch. 15.4 in the appendix. Before studying the intergenerational openness of Germany and the United States, I derive a mathematical formulation of differential fluidity based on the expectations and the class profiles tentatively formulated in Ch.4.4 and Ch. 7.4.

10.1 A model of social fluidity for post-industrial societies

The different class characteristics, i.e. work logics and hierarchical differences in available resources, and their inhabitants' class habitus limit the extent to which social fluidity equals perfect mobility. In the remainder of this chapter, hypotheses about the barriers and channels which relate the mobility chances of different class locations to each other will be formulated based on the hitherto made observations about the vertical and horizontal boundaries within and between the industrial and the post-industrial class segments. Following the introduction of structural models by Hauser (1978) and their enhancement by Erikson and Goldthorpe (1992), the aim is to construct a topological model that can account for the structural components that govern the origin-destination association in the mobility tables. Erikson and Goldthorpe (1992, p. 122f.) proposed classes' desirability, relative resource differences, social proximity and barriers as explanations for the interactions expressed in their models. Additional to these vertical or class-specific characteristics, the following model will also account for segmental differences in mobility chances. It is important to note that the following is a purely heuristic approach motivated by both theoretical knowledge and exploratory interest with the goal of describing mobility chances among IPICS classes in the most general fashion.

There are five different types of effects in the topological model of social fluidity. First, inheritance effects (IN) capture the propensity of individuals to remain in their origin classes or a vertically similar class. Second, hierarchy effects (HI) capture the barriers and channels that limit mobility between higher and lower classes within and between class segments. Third, affinity effects (AF) account for the social proximity and distance between classes that strengthen or offset the general barriers between them. While these three effects are founded in theoretical and empirical knowledge about the association between classes or follow the exploratory interest to understand the role of horizontal cleavages for the analysis of class mobility, two more effects are considered based on the analysis of parameter residuals after fitting the aforementioned model. First, a fourth effect (GE) accounts for differences between men and women and, second, country-specific proximity and distance effects (CE) account for country-specific residual deviations in fluidity. Each of the five effects consist of up to six consecutively numbered parameters, which allow for the differentiation of various types of barriers and channels between origins and destinations. In the following, we discuss the parameters and provide a graphical display of the parameter matrices (Tables 37 to 42). Effects are calculated across all origin-destination associations that contain the value 1. Although I speak of several parameters constituting one effect, this is simply a matter of language to differentiate the theoretically derived parameters from the mathematically fitted effects. The effect is fitted to all cells in which the respective parameter values equal one so that the size of the constituting cell interactions are averaged across parameters and, in total, create the effect size. Furthermore, effects are incremental so that opposing parameters, e.g., a hierarchical barrier and an affinity parameter, in the same cell may cancel each other out or weaken the respective stronger effect.

Table 37: Effect matrices for inheritance parameters

	A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*		*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	
M&A (A)	1	0	0	0	0	0	0	0	0	IN1	1	0	0	0	0	0	0	0	0	IN2
C&O (B)	0	1	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
SMW (C)	0	0	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
UMW (D)	0	0	0	1	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
PFS (E)	0	0	0	0	1	0	0	0	0		0	0	0	0	1	0	0	0	0	
SPF (F)	0	0	0	0	0	1	0	0	0		0	0	0	0	0	0	0	0	0	
SSW (G)	0	0	0	0	0	0	1	0	0		0	0	0	0	0	0	0	0	0	
USW (H)	0	0	0	0	0	0	0	1	0		0	0	0	0	0	0	0	0	0	
PeB/FAR (I)	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	1	
M&A (A)	0	0	0	0	1	0	0	0	0	IN3										
C&O (B)	0	0	0	0	0	0	0	0	0											
SMW (C)	0	0	0	0	0	0	0	0	0											
UMW (D)	0	0	0	0	0	0	0	0	0											
PFS (E)	1	0	0	0	0	0	0	0	0											
SPF (F)	0	0	0	0	0	0	0	0	0											
SSW (G)	0	0	0	0	0	0	0	0	0											
USW (H)	0	0	0	0	0	0	0	0	0											
PeB/FAR (I)	0	0	0	0	0	0	0	0	0											

Note: Parameters are fitted to cells containing a "1".

The inheritance effect comprises three inheritance parameters (Table 37). Inheritance is based on the one hand on class-specific resources and differential access to educational and/or occupational attainment as well as class based socialization that renders mobility costly in psychological and emotional terms (Ch. 4.4). The first parameter equals the quasi-perfect mobility (or uniform inheritance) parameter that accounts for the general propensity of social class inheritance (IN1) (Goodman, 1965). An additional inheritance parameter (IN2) accounts for the higher immobility related to the petty bourgeoisie and agricultural self-employed, the managerial and professional classes (Erikson & Goldthorpe, 1992). Arguably, the additional immobility parameter in the higher class segments results from advantageous economic and social resources which allow parents to offer their children diverse opportunities for class reproduction which are lacking in other classes, e.g., through knowledge about the educational system, high educational aspirations, own social networks or economic investments (Kendall, 2006). Finally, the third inheritance parameter (IN3) assumes particularly high lateral mobility between managerial and professional classes and represents the higher capacity for status maintenance in the highest classes which was also pronounced in the absolute mobility flows.

Table 38: Effect matrices for hierarchy parameters

	A	B	C	D	E	F	G	H	I		A	B	C	D	E	F	G	H	I		A	B	C	D	E	F	G	H	I	
M&A (A)	0	1	1	1	0	0	0	0	0	HI1	0	0	0	0	0	0	1	1	0	HI2	0	0	0	1	0	0	0	0	0	HI3
C&O (B)	1	0	0	1	0	0	0	0	0		0	0	0	0	1	1	0	1	0		0	0	0	0	0	0	0	0	0	
SMW (C)	1	0	0	1	0	0	0	0	0		0	0	0	0	1	1	0	1	0		0	0	0	0	0	0	0	0	0	
UMW (D)	1	1	1	0	0	0	0	0	0		0	0	0	0	1	1	1	0	0		1	0	0	0	0	0	0	0	0	
PFS (E)	0	0	0	0	0	0	1	1	0		0	1	1	1	0	0	0	0	0		0	0	0	0	0	0	0	1	0	
SPF (F)	0	0	0	0	0	0	1	1	0		0	1	1	1	0	0	0	0	0		0	0	0	0	0	0	0	1	0	
SSW (G)	0	0	0	0	1	1	0	1	0		1	0	0	1	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
USW (H)	0	0	0	0	1	1	1	0	0		1	1	1	0	0	0	0	0	0		0	0	0	0	1	1	0	0	0	
PeB/FAR (I)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
M&A (A)	0	0	0	0	0	0	0	1	0	HI4	0	0	1	1	0	0	0	0	0	HI5	0	0	0	0	0	0	1	1	0	HI6
C&O (B)	0	0	0	0	0	0	0	0	0		0	0	1	1	0	0	0	0	0		0	0	0	0	0	0	1	1	0	
SMW (C)	0	0	0	0	0	0	0	0	0		1	1	0	0	1	1	0	0	0		0	0	0	0	0	0	0	0	0	
UMW (D)	0	0	0	0	1	1	0	0	0		1	1	0	0	1	1	0	0	0		0	0	0	0	0	0	0	0	0	
PFS (E)	0	0	0	1	0	0	0	0	0		0	0	1	1	0	0	0	0	0		0	0	0	0	0	0	1	1	0	
SPF (F)	0	0	0	1	0	0	0	0	0		0	0	1	1	0	0	0	0	0		0	0	0	0	0	0	1	1	0	
SSW (G)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0		1	1	0	0	1	1	0	0	0	
USW (H)	1	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0		1	1	0	0	1	1	0	0	0	
PeB/FAR (I)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	

Note: Parameters are fitted to cells containing a “1”.

We consider six hierarchical parameters (Table 38). Hierarchy parameters capture hierarchical barriers preventing mobility between high, middle and low class positions within and between segments (ref. to Table 27 for the three vertical levels). Hierarchical barriers result from differential command of economic and cultural resources described throughout Ch. 7. They are comparable to the hierarchy effect postulated by Erikson and Goldthorpe (1992, pp. 123-124) with three exceptions.

First, because the interest rests here primarily on mobility chances among employee classes, the independent class is not assigned to any vertical level but effects are included in the affinity and disaffinity effects. Second, semi-professionals are treated as being in the same vertical level as professional and managerial positions due to the comparable importance of education for class attainment and relatively high incomes (Ch. 7). For most semi-professional occupations this design is similar to collapsing the EGP's service classes I and II into one broad 'service class' category as is frequently done in mobility studies (Erikson & Goldthorpe, 1992; Breen, 2004a). For those occupations that Goldthorpe would rather assign to the high-grade non-manuals or lower grade technicians, however, this deviates from the approach taken in studies employing Erikson and Goldthorpe's core social fluidity model. Third, I use three times as many hierarchy matrices to discern horizontal differences between hierarchy effects in the industrial and post-industrial segment.

The first hierarchy parameter (HI1) represents mobility barriers between classes on different vertical positions within class segments, whereas a second parameter (HI2) accounts for between-segment mobility barriers. The next two parameters model the particularly strong barriers between the highest and the lowest levels within each hierarchy, i.e. managerial and (semi-)professional classes on the one hand and both unskilled working classes on the other hand. The third parameter (HI3) accounts for within-segment long-range mobility barriers, whereas the fourth hierarchy parameter (HI4) represents barriers associated with between-segment long-range mobility. The last two hierarchy parameters capture barriers reducing fluidity between all higher classes and the manual working classes (HI5) or the service working classes (HI6). All but the last two hierarchy effects are modeled in such a way as to allow us to study within- and between-segment differences in mobility chances. The last two parameters capture the particular barriers that are associated with either blue or pink collar working classes. They are fitted in order to study whether net of other effects, a specific barrier exists that diverts manual working class children from higher class positions and the other way around. This expectation is fueled by studies which show that the unskilled manual class is characterized by a particular lack of mobility opportunities due to low resources and institutionally embedded (self-)selection processes which constrain mobility chances out of and into the lowest manual positions (Bourdieu & Passeron, 1977; Willis, 1977; Bowles & Gintis, 2002).

These nine parameters constitute a basic and exploratory model of social fluidity and are of primary interest for the following analysis. We now add effects representing social proximity (AF1) or social distance (AF2) between particular origins and destinations (Table 39). We have one symmetrical positive affinity between professionals' and (semi-)professionals' origin and destination classes which share not only the interpersonal work logic but frequently work in similar fields or even hand-in-hand, e.g., surgeons and registered nurses or surgical technicians. Belonging to the broad category of professions in different stages of the occupational professionalization process, they also share many work-related ethics. Finally, entrance to occupations in both (semi-)professional classes are similar regarding their closure mechanisms as both rely heavily on licensing and educational credentials (Weeden, 2002 and Ch. 7.3 above). Consequently, individuals in both classes share some class-specific common knowledge on entrance prerequisites, work conditions and are able to realistically assess the economic prospects in terms of remuneration and career options. While many nurses may not be surgical experts, their knowledge about daily work routines in the hospital and frequent contacts with medical interns may bolster their ability to guide their children through the complex process of choosing an occupation before actually experiencing it. The resulting positive affinity is represented in cells [5,6; 6,5]. Finally, several affinity terms account for asymmetric associations between employee classes and the independent classes in order not to mix these horizontal associations with primarily vertical ones. Because of the relatively high level of resources available in the highest classes, offspring in managerial and professional classes are likely to enter the petty bourgeoisie. Depending on the type of business, such a transition frequently involves high initial economic investments, while its success might well be conditional on social networks providing clients or venture capital. These resources are of course most likely to exist in the highest classes. Although such mobility is (occupation-wise) oriented towards lower classes, the higher degree of independence and potentially high incomes might be alluring especially for the academically less apt children. Moreover, such mobility strategies may allow for status maintenance on the long run even if the respective offspring failed to succeed in more classical, i.e., educational, reproduction strategies. Consequently, this effect is also covering financial insurance net policies most likely to exist in higher classes. This positive affinity parameter can be found in cells [1,9; 5,9]. The last two positively associated origins and destinations are related to the structural change which they capture through their asymmetry (Hout & Hauser, 1992). These effects account for the positive association between independent, mostly farm, origins and unskilled and skilled manual destinations and are fitted to cells [9,3; 9,4].

Table 39: Effect matrices for affinity parameters

	A	B	C	D	E	F	G	H	I		A	B	C	D	E	F	G	H	I	
M&A (A)	0	0	0	0	0	0	0	0	1	AF1	0	0	0	0	0	0	0	0	0	AF2
C&O (B)	0	0	0	0	0	0	0	0	0		0	0	0	1	0	0	0	0	0	
SMW (C)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
UMW (D)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
PFS (E)	0	0	0	0	0	1	0	0	1		0	0	0	0	0	0	0	0	0	
SPF (F)	0	0	0	0	1	0	0	0	0		0	0	1	0	0	0	0	0	0	
SSW (G)	0	0	0	0	0	0	0	0	0		0	0	0	1	0	0	0	0	0	
USW (H)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	
PeB/FAR (I)	0	0	1	1	0	0	0	0	0		1	0	0	0	1	0	0	0	0	

Note: Parameters are fitted to cells containing a “1”.

Furthermore, disaffinity parameters (AF2) account for social distance between origins and destinations. One such particular distance is expected to exist between clerical and skilled service origins on the one hand and unskilled manual destinations on the other. These two effects express the particularly strong barrier between manual and non-manual work which is magnified by the economic proximity between these origins and unskilled manual destinations (Ch.7.3). While higher middle class members may find little difference between the blue collar proletariat and white collar office or service workers, families in these classes need to distance themselves particularly strongly in order to guarantee class maintenance. While the class-cultural cleavage between industrial manual workers and skilled white and pink collar workers might be traditionally pronounced, the economic proximity and the opportunity for children to decide for manual work may further invoke defensive parenting strategies. The respective effects are fitted in cells [2,4; 7,4]. A particularly low association between semi-professional origins and skilled manual destinations can be assumed due to the pronounced differences regarding educational assets [7,3]. While the hierarchical barriers from professional or managerial classes are strong enough to prevent mobility from evolving, semi-professional families effectively divert their offspring from mobility into skilled manual destinations because the latter are (suspiciously) adjacent to the former.

Finally, negative affinity parameters account for a particularly low association between the independent classes and several employee classes. First, a negative association exists between petty bourgeois origins and managerial and professional destinations, which arguably results from hierarchical barriers that constrains relative upward mobility chances into the highest classes. While the opposite association is arguably positive, mobility from farm or other independent origins to the highest classes might be impeded by the heavy transaction costs occurring if land or specialized machinery must be converted into economic capital to finance educational attainment crucial for entering professional and increasingly managerial positions (Jonsson et al., 2009). Thus, we fit a negative affinity effect in cells [9,1; 9,5]. Finally, social distance is expected to be high between unskilled service origins and the independent classes due to gender stereotypes that differentiate both classes and, independently of a child's gender, increase the experienced distance between these origins and destinations. While unskilled service occupations are normally characterized as feminine fields of work (and are in fact dominated by women), independent work in farming and crafts is generally characterized as a male domain (Garrett et al., 1977; Hartung et al., 2005; White & White, 2006). In contrast, we do not fit such a term between unskilled manual and independent classes. Thus, we expect a lower than usual association also in cell [8,9].

Table 40: Effect matrix for the gender parameter

	B	C	D	E	F	G	H	I	
M&A (A)	0	0	1	0	0	0	0	0	GE1
C&O (B)	0	0	0	0	0	0	0	0	
SMW (C)	0	0	0	0	0	0	0	0	
UMW (D)	0	0	0	0	0	0	0	0	
PFS (E)	0	0	0	0	0	0	0	0	
SPF (F)	0	0	0	0	0	0	0	0	
SSW (G)	0	0	0	0	0	0	0	0	
USW (H)	0	0	0	0	0	0	0	0	
PeB/FAR (I)	0	0	0	0	0	0	0	0	

Note: Parameters are fitted to cells containing a "1".

After fitting these additional two parameters and examining cell residuals, it became clear that the deviation between the theorized model and the empirical data must be accounted for by three more effects. This effort resulted, first, in identifying a separate parameter which needs to be fitted to women's mobility tables (GE1) in both countries (Table 40). We found a particularly low association between managerial origins and unskilled manual destinations net of all other effects [1,4]. While none of the class effects is gender specific, one might argue that the association is weaker than usual because of gender differences in the transmission process and vocational preferences (Garrett et al., 1977). While some sons, especially the less bright, might learn their father's business from scratch and consequently enter at some point in their careers low positions, daughters from managerial backgrounds might lack comparable entrance positions or are, most likely in accordance with their parents, actively opposing the reproduction of the workplace class-gender antagonism within families. The second type of necessary effects are country-specific deviations from the theoretical model. Instead of changing the theoretic model in national variants (Erikson & Goldthorpe, 1992), another strategy was chosen in the following. Two additional country-specific effects account for the derivations from the theorized model.[63] While the first such effect (CE1) strengthens the mobility effects in specific origin-destination associations, the second effect (CE2) offsets selected mobility associations.

10.2 Country-specific adaptations: Germany

In Germany, a stronger than expected association (relative to the association between origins and destinations for which no effect has been fitted) exists in two cases (Table 41). The first positive parameter offsets the distance between semi-professional origins and skilled manual destinations and between skilled service origins and unskilled manual destinations. While both parameters increase model fit, they counteract the hierarchy effects, limiting the association between the respective origins and destinations. The nation-specific positive affinity between semi-professionals and skilled manual workers [6,3] might result from the proximity of lower grade technicians in skilled manual occupations and medium grade technicians among semi-professionals in Germany. The positive affinity between skilled service origins and unskilled manual occupations [7,4] accounts for lower than expected between-segment hierarchical barriers between both classes. Both parameters might result from the partial educational proximity between working classes and lower-grade engineers classes obtained through the vocational training system (Müller & Gangl, 2003). While the dual system of occupational training and apprenticeships is frequently singled out for its mobility impeding effects (Mayer et al., 2007), it might also reduce barriers between classes that frequently recruit their personal out of the vocational system. Finally, we fit another effect that accounts for a larger than expected affinity between unskilled service origins and independent destinations [8,9].

[63] Both procedures affect cross-national comparability in some way. While Erikson and Goldthorpe limit the generality of their core model of social fluidity by adapting its parameters to reflect national idiosyncrasies, the chosen procedure in this work has to cope with differences in the parameter of interest due to the additional fitted parameters. In either case, parameters are not strictly comparable but always have to be interpreted in conjunction with the whole model.

Table 41: Effect matrices for German-specific fit parameters

	A	B	C	D	E	F	G	H	I		A	B	C	D	E	F	G	H	I	
M&A (A)	0	0	0	0	0	0	0	0	0	CE1	0	0	0	0	0	0	0	0	0	CE2
C&O (B)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
SMW (C)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
UMW (D)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1	
PFS (E)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
SPF (F)	0	0	1	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
SSW (G)	0	0	0	1	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
USW (H)	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	1	0	
PeB/FAR (I)	0	0	0	0	0	0	0	0	0		0	0	0	0	1	0	0	0	0	

Note: Parameters are fitted to cells containing a "1".

Country-specific negative affinity (CE2) in Germany can be accounted for by the peculiarities of the educational system and its interrelation with the labor market. The first distance effect is associated with unskilled manual origins and independent class destinations [4,9], which might be related to economic barriers for entering the latter class position. Until the early 2000s, a costly associate's degree (*Meister*) was the precondition for opening an independent craft or artisanal business (Thelen, 2004, p. 276f.). While the field of work between unskilled manual and a self-employed individual might be similar, the high costs to achieve the required degree for opening a business might disadvantage the offspring of unskilled manual over other classes. Furthermore, the immobility propensity in the German unskilled service working class is lower than in other classes [8,8]. The lower immobility propensity is likely to result from the particularly low economic chances attached to this class and the general availability of vertically similar unskilled manual work. Moreover, the association between independent class origins and professional destinations are particularly weak in Germany [9,5]. This additional negative effect might result from the particularly high educational barriers which regulate entrance to the professional class in Germany.

10.3 Country-specific adaptations: United States

Positive and negative effects are also fitted to account for the national specificity of the U.S. fluidity regime (Table 42). The first positive effect (CE1) accounts for the higher than expected association between managerial origins and semi-professional destinations [1,6]. A similar country-specific affinity effect has been fitted by Erikson and Goldthorpe (1992, p. 319) in their national variant of the core social fluidity model for American men to account for a higher association between the service classes and the routine non-manual classes. Especially in lower managerial positions, the stronger than usual association might represent another means of lateral mobility for individuals from medium grade managerial origins. The second positive effect also accounts for the higher immobility propensity in the professional class in the U.S. [5,5]. Arguably, this effect is related to the high economic costs of higher tertiary education in the U.S. While the tuition of four-year colleges have always been higher than other post-secondary educational fees, the former have risen more strongly since the 1980s, particularly with regard to private universities (Roksa et al., 2007). Consequently, advantages associated with high socio-economic background are more strongly related among professionals in which reproduction is typically solely achieved through the educational system. Third, a positive association relates unskilled service origins and clerical destinations [8,2]. This positive association that partly offsets the various hierarchical boundaries is likely to reflect the particular affinity of rank-and-file office work and unskilled service work. While both classes are distinctively non-manual, they also share various work characteristics like low incomes, low fringe benefits and low educational attainment. That this effect is required in the U.S. but not in Germany might result from the stronger institutional differences between workers and employees in Germany particularly the higher institutionalization of qualification manifested by different educational trainings (Mayer & Aisenbrey, 2007 and Ch. 7.3 above). Finally, the positive parameter accounts for a positive association between self-employed origins and unskilled service destinations and vice versa [9,8; 8,9], as well as between skilled service worker origins and self-employed destinations [7,9] Arguably, this positive association might represent hidden reproduction. Formal self-employment for otherwise subordinate wage earners is one way for employers in the interpersonal sector to reduce costs. Thus, the positive association between independent classes on the one hand and lower service working classes on the other hand might be a type of hidden reproduction net of hierarchical and segmental barriers, which are particularly strong in the U.S. where employment contracts are less regulated, the low-income labor market segment is particularly large and the expansion of the service sector frequently coincided with formal self-employment (Esping-Andersen, 1999; Kalleberg, 2001; Arum, 2007).

Table 42: Effect matrices for U.S.-specific fit parameter*s*

	A	B	C	D	E	F	G	H	I		A	B	C	D	E	F	G	H	I	
M&A (A)	0	0	0	0	0	1	0	0	0	CE1	1	0	0	0	0	0	0	0	0	CE2
C&O (B)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
SMW (C)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
UMW (D)	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	
PFS (E)	0	0	0	0	1	0	0	0	0		0	0	0	1	0	0	0	0	0	
SPF (F)	0	0	0	0	0	0	0	0	0		0	1	0	0	0	0	1	0	0	
SSW (G)	0	0	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	0	
USW (H)	0	1	0	0	0	0	0	0	1		0	0	0	0	0	0	0	0	0	
PeB/FAR (I)	0	0	0	0	0	0	0	1	0		0	0	0	0	0	1	0	0	0	

Note: Parameters are fitted to cells containing a "1".

The investigation of cell residuals, finally, results in fitting an additional five parameters accounting for lower than expected associations given the social fluidity model in the U.S. First, we have to account for lower associations between managerial origins and destinations for which we cannot provide any satisfactory explanation other than the heterogeneity of managerial positions in the U.S. data. Like others (Erikson & Goldthorpe, 1992; Morgan & Tang, 2007), we encounter problems especially in older surveys in which COC1970 were used with the managerial class assignment. Various managers and administrators in the older surveys work as managers, not elsewhere classified. While this code's assignment to the managerial class is coherent and logical within the IPICS scheme, it is unclear to what extent this category has been used as a residual category for various occupations in which managerial work may be one, but not the most important, characteristic. This artefact consequently affects the propensity of self-reproduction and is accounted for by this effect. We further account for the particularly low association between professional origins and unskilled manual destinations [5,4], which comes on top of other barriers and the additionally negative association between semi-professional origins and clerical destinations [6,2] as well as skilled service destinations [6,7]. All three represent barriers that may be driven by the educational chasm between academic and vocational post-secondary education that differentiates trajectories between highly educated backgrounds and the lower non-credentialed classes. Additionally, the lower than expected association between professionals and unskilled manuals may also account for racial barriers which limit fluidity between the primarily white origin and frequently African-American destination class (Table 19). Finally, a parameter accounts for lower associations between independent origins and semi-professional destinations representing hierarchical barriers related to educational attainment [9,6]. After presenting the general model of social fluidity, it can in the following be fitted to intergenerational mobility in both countries. Once again, speaking of single parameters that are fitted to origin-destination cells is strictly speaking incorrect. Each effect is modeled as a single parameter affecting all cells for which an effect can be reasonably expected. Important is not so much that the association strength is similar across parameters but that they point in the same directions. Thus, the effect strength equals the average of the mobility propensity, net of other effects, relative to the association of cells in which no parameters are fitted. Having described the IPICS core model of social fluidity, I now turn to the analysis of relative mobility chances in Germany and the United States.

11 Social fluidity in Germany

Following from the social fluidity model presented in the preceding chapter, Table 43 summarizes the different effects which are expected to govern the intergenerational association between origins and destinations in Germany. By constraining the 13 empty cells to take an interaction parameter of zero, the sum of the values of the parameter effects within each cell can be interpreted in line with Erikson and Goldthorpe as the propensity to be mobile relative to a neutral fluidity level, i.e. the fluidity in cells without any parameter, net of the fitted margins. While this arbitrary reference level reduces the interpretability of the strength of each single parameter, the common reference group allows to compare the size of fluidity parameters against each other.

Table 43: *Barriers and channels shaping social fluidity in Germany*

	M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB/ FAR
M&A	IN1,IN2	HI1	HI1,HI5	HI1,HI3, HI5,GW1	IN3	NF	HI2, HI6	HI2,HI4, HI6	AF1
C&O	HI1	IN1	HI5	HI1,HI5, AF2	HI2	HI2	HI6	HI2,HI6	NF
SMW	HI1,HI5	HI5	IN1	HI1	HI2,HI5	HI2,HI5	NF	HI2	NF
UMW	HI1,HI3, HI5	HI1, HI5	HI1	IN1	HI2,HI4,HI5	HI2,HI4, HI5	HI2	NF	CE2
PFS	IN3	HI2	HI2,HI5	HI2,HI4, HI5	IN1,IN2	AF1	HI1, HI6	HI1,HI3, HI6	AF1
SPF	NF	HI2	HI2,HI5, AF2,CE1	HI2,HI4, HI5	AF1	IN1	HI1, HI6	HI1,HI3, HI6	NF
SSW	HI2,HI6	HI6	NF	HI2,AF2, CE1	HI1,HI6	HI1,HI6	IN1	HI1	NF
USW	HI2,HI4, HI6	HI2, HI6	HI2	NF	HI1,HI3,HI6	HI1,HI3, HI6	HI1	IN1,CE2	AF2,CE1
PeB/FAR	AF2	NF	AF1	AF1	AF2,CE2	NF	NF	NF	IN1,IN2

Note: For more information refer to text and parameter matrices in Tables 37 to 41. NF = Reference fluidity level for parameter estimates.

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This model of social fluidity allows us to describe the pattern of social fluidity observable in the German mobility table. Although the assumed mobility effects are derived from a partly exploratory perspective, theoretical arguments have been provided as to why they should account for the observed mobility propensities. While the underlying assumptions will not be directly tested in the following, it will be tested whether the overall pattern of the association is a satisfying representation of the origin-destination association.

11.1 Barriers and bridges: Social fluidity in Germany

Table 44 presents model fit and parameter estimates for the social fluidity model developed above fitted to mobility tables of men and women in Germany. Each model 1 represents the model of independence in which equiprobability of mobility chances is assumed, whereas model 2 fits the 13 and for women 14 parameters which represent the social fluidity model. The different model fit indicators reveal that the social fluidity model fits the data well. Relative to the model of independence, the social fluidity models reduce deviance (rG^2) by 95% for men and 92% for women, whereas the dissimilarity index (Δ) comparing the observed and the modeled table declines from 17% for men and 13% for women to 4%, respectively. While the negative BIC value indicates a parsimonious representation of the data, the likelihood ratio test statistic demonstrates that significant differences between the saturated model and the social fluidity models remain among men and women ($p - value < 0.0001$). Because deviance is sensitive to sample sizes, we calculate the deviance again based on a smaller sample, i.e. assuming that our tables would display the same patterns but were to contain only 3,890 individuals like the German CASMIN dataset used in the *constant flux* (Erikson & Goldthorpe, 1992, pp. 88, 142). For both men and women, the reduction in deviance now increases standardized model fit ($G^2(S)$) substantially to the extent that it does not differ significantly in model fit for men ($G^2(S) = 36.5, d.f. = 51, \alpha = 0.937$) or women ($G^2(S) = 45.2, d.f. = 50, \alpha = 0.666$) compared to the less parsimonious full model. Thus, for men and women, the social fluidity model is an acceptable representation of the observed intergenerational class association.

Table 44: The general pattern of social fluidity in Germany

	M	*Parameter*	*df*	G^2	rG^2	*P-value*	*Δ*	*BIC*	*AIC*	$G^2(S)$	*P-value*
Men	1	O,D	64	8904.6	n.a.	0.0000	16.8	8223.4	9549.3	826.2	
	2	O,D,+SF	51	393.6	95.6	0.0000	3.5	-149.2	1064.3	36.5	0.9373
Wom	1	O,D	64	5004.3	n.a.	0.0000	12.5	4337.1	5628.1	577.7	
	2	O,D,+SF	50	391.2	92.2	0.0000	3.7	-130.1	1043.0	45.2	0.6660

Note: Compiled dataset (refer to Ch. 6 for more information). N=41,928 men and 33,697 women. G2(S) is the standardized deviance assuming 3,890 observations using Schwartz's formula (Erikson & Goldthorpe, 1992, pp. 88, 142).

Table 45 presents the parameter estimates for men and women obtained from model 2 in Table 44, the calculated effect parameters are displayed. Negative values indicate low mobility propensity, whereas positive values indicate high mobility propensity relative to the neutral fluidity level. Among both genders, all effects take on the expected sign. The three inheritance effects (INX) are positive indicating that individuals are likely to remain in their origin classes or, in case of IN3, that the highest classes are likely to be horizontally mobile to reproduce their vertical position across generations. The six inheritance effects (HIX) are negative indicating that the interpretation of these effects as hierarchical barriers is warranted. Finally, the affinity, country and gender effects take on the expected signs representing social proximity (AF1, CE1) and social distance (AF2, CE2, GE1). Although not strictly comparable, parameter estimate sizes and differences between parameters match closely those reported for Germany in the constant flux (Erikson & Goldthorpe, 1992, pp. 135, 147)

Comparing parameter estimates, we initially observe that the additional inheritance effect in the highest classes and the petty bourgeoisie (IN2) is more than double the effect of uniform inheritance (HI1) for men and six times the effect for women. In accordance with earlier research, immobility propensity in the propertied classes of managers, professionals and independents is also based on the IPICS classes far higher than the normal level of inheritance (Erikson & Goldthorpe, 1992; Müller & Pollak, 2004). The uniform inheritance parameter among women is considerably smaller relative to other parameters in comparison to the results of men. This result parallels the lower absolute immobility levels observed above among women (Ch. 8.2). Women's higher fluidity is due to the gendered class structure which inhibits immobility particularly in the male-dominated positions, for instance in the skilled manual working class. I also find that the parameter reflecting vertical mobility in the highest classes (HI3) is around the size or, in case of women, even larger than the uniform inheritance parameter.

Thus, inheritance as well as horizontal mobility propensities are particularly high in the highest IPICS classes, giving testament to the extraordinary capacities and opportunities for high status reproduction.

Table 45: Parameter estimates of mobility channels and barriers

	IN1	IN2	IN3	HI1	HI2	HI3	HI4	HI5	HI6	AF1	AF2	CE1	CE2	GE1
Men	0.43	0.85	0.43	-0.08	-0.16	-0.49	-0.63	-0.27	-0.23	0.28	-0.95	0.53	-0.41	
Women	0.17	1.04	0.27	-0.23	-0.24	-0.34	-0.63	-0.23	-0.20	0.36	-0.65	0.39	-0.32	-0.65

Note: Social fluidity parameters are calculated under models 2 in Table 44.

The study of the hierarchical parameters confirms hypotheses about inter-segmental mobility barriers. Hierarchy parameters are always lower if only within-segment barriers have to be overcome. In fact, the general hierarchical barriers within segments (HI1) are the weakest mobility barriers, and for men are hardly significant. The fluidity reducing effect of the between-segment barriers (HI2) is more than double the size of the within-segment barrier among men. While long-range barriers are generally stronger than the basic mobility barriers, differences between long-range within- and between-segment hurdles are particularly pronounced. Between-segment barriers (HI4) are among men 1.3 times and among women 2.6 times stronger than within-segment barriers (HI3). Finally, we note that mobility chances between higher classes and the manual working classes (HI5) are always weaker than between the former and the service working classes (HI6), indicating greater mobility preventing barriers around the manual classes.

Of particular strength are the indicators mostly mapping mobility chances related to the independent classes (AF1, AF2, CE1, CE2) and the negative association between managerial origins and unskilled manual destinations (GE1) for women. The latter effect further adds to the working class barriers. We can now calculate cell paramters by exponentiating the sum of the effect parameters active in each cell and compare these to the 11 cells in which no effects have been fitted.

Table 46: Cell parameters for men (upper value) and women (lower)

	M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB/FAR
M&A	3.57	0.93	0.71	0.44	1.53	1.00	0.68	0.36	1.33
	3.34	0.80	0.64	0.24	1.30	1.00	0.64	0.34	1.43
C&O	0.93	1.53	0.77	0.28	0.85	0.85	0.80	0.68	1.00
	0.80	1.18	0.80	0.33	0.78	0.78	0.82	0.64	1.00
SMW	0.71	0.77	1.53	0.93	0.65	0.65	1.00	0.85	1.00
	0.64	0.80	1.18	0.80	0.62	0.62	1.00	0.78	1.00
UMW	0.44	0.71	0.93	1.53	0.35	0.35	0.85	1.00	0.67
	0.45	0.64	0.80	1.18	0.33	0.33	0.78	1.00	0.73
PFS	1.53	0.85	0.65	0.35	3.57	1.33	0.74	0.45	1.33
	1.30	0.78	0.62	0.33	3.34	1.43	0.65	0.46	1.43
SPF	1.00	0.85	0.43	0.35	1.33	1.53	0.74	0.45	1.00
	1.00	0.78	0.48	0.33	1.43	1.18	0.65	0.46	1.00
SSW	0.68	0.80	1.00	0.56	0.74	0.74	1.53	0.93	1.00
	0.64	0.82	1.00	0.61	0.65	0.65	1.18	0.80	1.00
USW	0.36	0.68	0.85	1.00	0.45	0.45	0.93	1.02	0.66
	0.34	0.64	0.78	1.00	0.46	0.46	0.80	0.86	0.78
PeB/FAR	0.39	1.00	1.33	1.33	0.26	1.00	1.00	1.00	3.57
	0.52	1.00	1.43	1.43	0.38	1.00	1.00	1.00	3.34

Note: Figures equal the exponentiated sum of effect parameters active in each cell obtained from Table 45.

Table 46 presents the exponentiated sum of effect parameters for each origin-destination combination calculated under model 2 in Table 45. Upper values indicate mobility chances relative to the neutral fluidity level for men and lower values for women. It is at once obvious that cells which indicate immobility show the highest mobility propensity, followed by cells which indicate lateral moves between the highest classes, whereas cells indicating long upward or downward mobility have relatively low mobility propensities. Cells pertaining to self-reproduction in managerial [row 1 and column 1 in Table 46], professional [5,5] and independent [9,9] classes in which both IN1 and IN2 are in force display the greatest propensity for being immobile. Among men and women the association is more than three times stronger than neutral mobility. While class maintenance in the highest classes achieved through lateral mobility [1,5; 5,1] is more likely than neutral fluidity, relative mobility chances between semi-professional and clerical positions [2,6; 6,2] are limited by existing hierarchical barriers (HI1, HI2). Particularly high fluidity is also observable between professionals and semi-professionals [5,6; 6,5], classes between which no hierarchical effects but the positive affinity term (AF1) is fitted. For women, fluidity accounts here for nearly 1.5 times the neutral fluidity level, which is higher than the degree of inheritance on the diagonal.

Furthermore, we find particularly strong barriers to mobility between the lowest and the highest classes, i.e., in cells in which the HI3 and HI4 parameter is active. The mobility propensity to be downwardly mobile from professional classes to unskilled manual classes [5,4] accounts for only 35% of men's and 33% of women's neutral mobility level. Due to the lower within-segment mobility barriers, the mobility propensity for long-range downward mobility from managerial origins into unskilled manual classes [1,4] is higher for men (44%), while women's specific disaffinity term (GE1) reduces it to a mere 24% of the neutral fluidity level. In contrast, fluidity between professional and managerial classes on the one hand, and the unskilled service working class on the other hand, are depressed by the higher between-segment mobility barriers, but suffer less from working class status as compared to the unskilled manual class. The association is limited to 45% [5,8] and 36% [1,8] of men's neutral fluidity level and up to 46% [5,8] and 34% [1,8] of the neutral fluidity level of women. Mobility propensities in the opposite direction are equally small and attest the various barriers faced by individuals from lower class origins.

While the cell parameters are interesting for studying single origin-destination associations relative to the neutral fluidity level, a more aggregated perspective is helpful for discerning the segmental cleavages. Table 47 presents the differences between exponentiated cell parameters for industrial origins with those from post-industrial origins for each destination combination. Negative values indicate that the relative mobility propensity is higher for the offspring born in the respective post-industrial classes as compared to offspring originating in vertically equal industrial classes. For the ease of the reader, off-diagonal cells are more darkly shaded the smaller the value it contains. With two exceptions, mobility propensities are generally higher among both men and women if origin and destination classes are in the same segment. For instance, the exponentiated logged odds of men with skilled manual backgrounds to be downwardly mobile to the unskilled manual class is .37 higher than that of skilled service workers. The first exception, however, is the contrast between the clerical and the semi-professional classes. We observe a higher association between semi-professional than clerical origins and unskilled manual destinations for men, and a higher association between clerical origins and unskilled and skilled service worker destinations for both genders. The former results from the negative affinity between clerical origins and unskilled manual destinations, whereas the latter follows from the additional hierarchical barriers which lower mobility propensities between the semi-professional - but not the clerical - class on the one hand, and skilled and unskilled service worker locations on the other hand. The second exception is the particularly low association between managerial origins and unskilled manual destinations among women which results from the gender-specific disaffinity effect (GE1).

Table 47: Differences between cell parameters between segments

Men	M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW
M&A vs. PFS	2.04	0.08	0.06	0.09	-2.04	-0.33	-0.06	-0.09
C&O vs. SPF	-0.07	0.68	0.34	-0.07	-0.48	-0.68	0.06	0.22
SMW vs. SSW	0.03	-0.03	0.53	0.37	-0.09	-0.09	-0.53	-0.08
UMW vs. USW	0.07	0.03	0.08	0.53	-0.11	-0.11	-0.08	-0.02
Women	**M&A**	**C&O**	**SMW**	**UMW**	**PFS**	**SPF**	**SSW**	**USW**
M&A vs. PFS	2.04	0.01	0.01	-0.10	-2.04	-0.43	-0.01	-0.12
C&O vs. SPF	-0.20	0.40	0.31	0.00	-0.64	-0.40	0.17	0.18
SMW vs. SSW	-0.01	-0.02	0.18	0.19	-0.03	-0.03	-0.18	-0.01
UMW vs. USW	0.11	-0.01	0.01	0.18	-0.13	-0.13	-0.01	0.14

Note: Cell values are the difference of exponentiated cell parameters of industrial and post-industrial origin classes taken from Table 46. Negative figures indicate lower relative fluidity in the respective industrial class, whereas positive figures indicate a lower mobility propensity for the offspring of post-industrial classes.

Comparing the values in the off-diagonal lower and upper triangles between the two segments, we find that relative to the neutral level, fluidity is moderately higher between some post-industrial origins and destinations as compared to the relative association between industrial origins and post-industrial destinations. While this is mainly due to the positive affinity between the semi-professional and professional classes, we also find that upward mobility chances within the post-industrial segment are higher because of the larger between- and lower within-segment barriers and the comparatively larger barriers faced by the manual working class.

The empirically derived IPICS core social fluidity model parameters reveal that segmental differences are important to understand social fluidity in Germany. Relative mobility propensities are higher within segments than between segments. Individuals with skilled manual and unskilled manual origins, for instance, show a greater propensity to enter the managerial class (men: .03 and .07; women:-.01 and .11) than the professional class (-.09 and -.11; -.03 and -.13) relative to those from skilled and unskilled service origins. Moreover circulation mobility within working class segments is higher than between segments. Relative to skilled service worker origins, children from skilled manual origins show a greater propensity to enter unskilled manual positions (.37; .19) than to enter unskilled service positions (-.08; -0.1). The same is true the other way round. Compared to individuals with unskilled service backgrounds, those from unskilled manual origins are more likely to enter skilled manual positions (.08; .01) than skilled service positions (-.08; -.01). Finally, upward mobility propensities into the growing post-industrial high classes differ between working classes. The offspring of skilled and unskilled manual offspring is less likely to enter either of the professional class (both: -.09 and -.11; -.03 and -.13) relative to individuals with skilled service backgrounds. Based on this model, horizontal differences within the working class between blue and pink collar employees are clearly discernable.

The findings about the social fluidity pattern in Germany are in accordance with previous research. The comparatively high degrees of immobility and the pronounced hierarchical effects have been reported by all studies employing comparable methods (Müller, 1975; Erikson & Goldthorpe, 1992; Müller & Pollak, 2004). They most likely result from at least two specific characteristics. First, the German educational system is characterized by high degrees of inequality in educational opportunity (Shavit & Blossfeld, 1993). Early school tracking disproportionally advantages children from high class backgrounds and favors those which were raised in German speaking families. Consequently, educational attainment in Germany is highly conditional on social class background (Alba et al., 1994; Müller & Haun, 1994; Henz & Maas, 1995; Schimpl-Neimanns, 2000; Pfeffer, 2008; Breen et al., 2009, 2010, 2012; Krüger et al., 2012). Additionally, the dual system of vocational training offers children from non-academic backgrounds viable alternatives to tertiary education (Hillmert & Jacob, 2003). Especially, financial constraints and the lack of self-confidence divert working class children from reaching universities in Germany (Müller & Pollak, 2007; Becker & Hecken, 2009).

The labor market complement to early selection in vocational and academic tracks is the status and legal distinction between laborers (*Arbeiter*), employees (*Angestellte*) and civil servants (*Beamte*) (Müller & Pollak, 2004, pp. 82-83). This difference is deeply ingrained in German society and institutions (Kocka, 1980; Kocka, 1981; Kohli, 1987). In the early 20th century, for instance, employment protection law differentiated between laborers and employees and until today the payday differs between civil servants who are paid at the beginning of the month and other employees who are paid in the middle or at the end of the month. Until the last decade, laborers and employees differed formally in terms of remuneration, retirement and health care schemes. German civil servants still obtain privileged access to health care through subsidized private insurances and higher pensions, which are calculated based on the last three years in service instead of being based on the contributions made over the career (Altenstetter & Busse, 2005;

Kuhlmann & Röber, 2006). Consequently, intergenerational mobility between categories, and especially out of the working class, has historically been limited (Müller, 1975; Mayer & Aisenbrey, 2007). A combination of unequal access to resources, career opportunities, as well as early educational and occupational selection is frequently cited as producing the particularly strong inheritance patterns observable in Germany.

While this fits well with the results concerning the vertical differences, it also poses the question of whether the horizontal differences between within- and between-segment mobility is reducible to the differentiation between laborers in the manual working classes and the mixture of laborers and employees in the service working classes. In fact, according to the weighted Allbus data for 2012, only every third skilled and unskilled service worker was a laborer, whereas 80% of unskilled and 65% of skilled manual workers belonged to that legal category. Additionally, however, the lower mobility chances of manual workers are also likely to result from their higher share of migrants who frequently lack mobility opportunities in Germany (Kalter et al., 2007; Pollak, 2010). Whether between- and within-segment differences in general, and lower fluidity of manual workers, are a German particularity will be discussed in direct comparison to the American results below. Whether these horizontal differences are negligible, however, will be tested in the following through a direct comparison with the EGP scheme.

11.2 Comparing the IPICS and EGP classes directly: the German case

What we find indicates that collapsing the manual working class with the service working class results in ignoring the different mobility barriers faced by working classes in each of the two segments. This can cause problems in future analyses of social fluidity trends if working class origins post-industrialize as is likely given the transformation of destinations. In such a scenario, increasing fluidity could just be an artefact resulting from the higher fluidity of the service working class. Additionally, the inclusion of mothers as additional proxies for social backgrounds may affect results primarily through the change in the composition of classes rather than indicating any substantial change in the fluidity pattern. While these points need to be further elaborated, they point towards the need for a direct comparison of the IPICS and EGP schemes. Because IPICS is arguably a further disaggregation of the EGP scheme, we can compare both models directly employing models proposed by Weeden and Grusky (Weeden & Grusky, 2005b, 2012).

Whether or not categories in a table can be collapsed has been discussed frequently with reference to log-linear models (Goodman, 1971; Reynolds, 1977; Gillespie, 1978; Allison, 1980). Social mobility researchers employing the EGP scheme, for example, frequently collapse unskilled service workers and unskilled manual workers (EGP IIIb and EGP VIIab) deliberately without much further ado and, by design, the skilled service workers with the skilled manual workers (EGP VI). Given the dominance of the EGP scheme in stratification literature from a class perspective, it seems warranted to put this practice to an empirical test and study whether some of the meaningful associations between origins and destinations is lost if the EGP scheme is employed in such a way. Three decades ago, Bishop et al. formulated the conditions under which a multi-dimensional frequency table may be collapsed with respect to some of its dimensions:

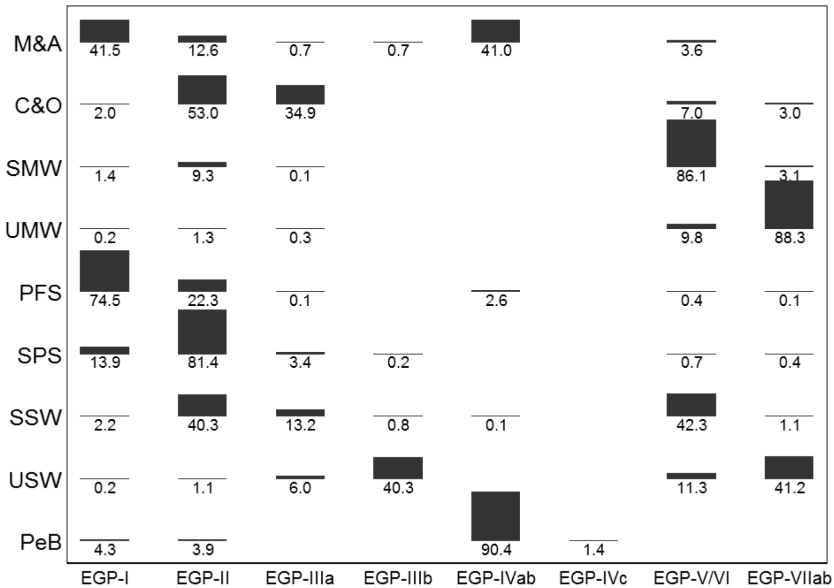
> "Suppose the variables in an s-dimensional array are divided into three mutually exclusive groups. One group is collapsible with respect to the u-terms involving a second group, but not with respect to the u-terms involving only the third group, if and only if the first two groups are independent of each other (i.e., the u- terms linking them are 0)." (Bishop et al., 2007 [1975], p. 47)

The u-terms Bishop and colleagues speak of are simply the interaction parameters of different origin-destination combinations that may or must not be collapsible. Adapted to the purpose at hand, I test whether the four-way EGP origin by EGP destination by IPICS origin by IPICS destination table is collapsible with regard to the association between IPICS origins and destinations. Using the notation introduced in Appendix Ch. 15.4, this hypothesis simply states that the IPICS λ^{OD}-parameters and any higher-order term including these interactions, i.e., $\lambda^{O_{IPICS}D_{IPICS}D_{EGP}}$ and $\lambda^{O_{IPICS}D_{IPICS}O_{EGP}}$, equal zero in the four-way table. To test this assumption we consider two models.[64] Model 1 includes all three-way interactions and the constitutive lower-level interactions and one-way margins, but not any of the three aforementioned interactions of IPICS origins and destinations. Such a model therefore assumes that there is no association between IPICS origins and destinations and that fluidity is parsimoniously modeled by the EGP λ^{OD} alone or in conjunction with either of the IPICS margins. This model is then compared with model 2 which includes the IPICS λ^{OD} term. If the latter model increases model fit statistically, we can assume that the IPICS differentiation is needed to fully understand the origin-destination association.

[64] I want to thank the audience of a presentation of this work at the RC-28 Spring Meeting 2015 in Tilburg who pressed me for a statistical test to prove the worth of the IPICS classes. In particular, I am grateful to Jani Erola who proposed the idea to me (and, in fact, the R code) to calculate this test. The responsibility for any errors occurring in the implementation of his ideas rests, of course, with me. A further elaboration of this test has been proposed recently by Güveli and colleagues (Güveli et al., 2012).

For performing such a test we use data from 30- to 64-year old respondents of all Allbus surveys (Koch & Wasmer, 2004; GESIS, 2012). We choose this dataset because EGP classes are already available in the basic dissemination of the data (Trometer, 1993). The EGP scheme is used in its 8-class version differentiating the higher service class (EGP I), the lower service class (II), higher grade routine non-manual (IIIa), lower grade routine non-manual (IIIb), the petty bourgeoisie (IVa+b), farmers (IVc), skilled manual workers and lower grade technicians (V+VI) and unskilled manual and agricultural workers (VIIa+b). Although in many social mobility applications EGP I and II, as well as EGP IIIb and EGP VIIa+b are collapsed, we did not do that here in order to evade the possible allegation of misrepresenting the EGP scheme's potential complexity. The IPICS classes are operationalized in its ten-class version used until now.

Figure 34: Distribution of IPICS classes across EGP classes, Germany



Note: Allbus 1980-2012. N=12,880. For EGP abbreviations see Figure 8.

Figure 34 displays the distribution of IPICS classes across EGP classes. Each bar represents the respective share of individuals in an IPICS class that is also assigned to an EGP class. For instance, 42% of managers and administrators are assigned to EGP's high service class and another 41% are petty bourgeoisie and large employers in the latter's taxonomy. Comparing IPICS and EGP, it is obvious that IPICS classes mostly relate to EGP classes. A majority of occupations assigned to professionals are associated with the high service class (75%), whereas nearly all semi-professional occupations are within the EGP's low service class (81%). In other cases, however, IPICS and EGP classes are less congruent. In the working classes, nearly all IPICS skilled manual workers and unskilled manual workers are at the same time skilled (86%) and unskilled manuals (88%) in the EGP scheme. However, only 42% of skilled service workers and 41% of unskilled service workers are assigned to the manual EGP classes. The rest of these classes are populated either by, in terms of the EGP, low service class members or low-grade routine non-manuals.

Table 48: Comparing EGP and IPICS, Germany

	M	Parameters	df	G^2	rG^2	α	BIC	N
Men	1	$O_{IPICS}:D_{EGP}:O_{EGP}$ + $D_{IPICS}:D_{EGP}:O_{EGP}$	5,184	1,246,595.1	NA	NA	1,200,000.9	8,007
	2	1 + $O_{IPICS}:D_{IPICS}$	5,103	1,230,634.4	1.3%	0.0000	1,184,768.3	8,007
Wom	1	$O_{IPICS}:D_{EGP}:O_{EGP}$ + $D_{IPICS}:D_{EGP}:O_{EGP}$	5,184	172,015.9	NA	NA	127,996.1	4,873
	2	1 + $O_{IPICS}:D_{IPICS}$	5,103	169,846.4	1.3%	0.0000	126,514.5	4,873

Note: Allbus 1980-2012. Subscript indicates which class scheme's margin is fitted. All constitutive lower-level interactions and margins are fitted.

The results of fitting both models for men and women is displayed in Table 48. As we can see immediately, none of the models reaches a reasonable fit due to the various structural zeros within the four-way table. While we may account for that by blanking out these cells using topological models, we find that it does not make any difference with regard to the substantial result. For both men and women, we observe that model 2 substantially improves on model fit relative to model 1 (for men, $G^2{}_{M1-M2} = 15{,}960.7, d.f._{M1-M2} = 81, \alpha = 0.000$ and, for women, $G^2{}_{M1-M2} = 2{,}169.5, d.f._{M1-M2} = 81, \alpha = 0.000$). Thus, the IPICS origin-destination association is statistically significant different from zero and the above found fluidity differences are generally ignored if solely the EGP scheme is applied. Arguably, this deviation from reality becomes greater the more classes are collapsed as is "best-practice" in mobility analyses. Far from devaluating the EGP scheme, this modeling exercise simply shows that the IPICS scheme provides some additional insights into the mobility process not captured by the primarily vertically differentiated EGP scheme. Having analyzed the fluidity patterns and demonstrated the significance of the IPICS scheme, the question of whether social fluidity changed in Germany over the 20th century is considered in the following section.

11.3 Changing social fluidity across cohorts

Already in its early days, social mobility research was particularly interested in the evolution of social fluidity over time (Sorokin, 1927 [1959]). Societies that are deemed particularly open have been frequently hailed for the equal opportunities which they supposedly provide (Lipset, 1996; Ferrie, 2005; Tocqueville, 2010 [1835]). Sombart, for instance, argues that the possibility for "ordinary workers [to] ascend the rungs of the ladder of the capitalist hierarchy to the top or almost to the top" is an important reason for the longevity of the American political economy (Sombart, 1906 [1976], p. 116). Of course, most of these authors equate openness with the possibility for upward mobility, whereas social fluidity necessarily relates to both upward and downward mobility chances.

In order to study the development of mobility chances, we now analyze the destination by origin by cohort table and come back to the transformation of barriers and channels later in this chapter. There are various empirical studies on social mobility in West Germany which either directly study cohort change or allow for the inference of possible trends over time (Müller, 1975; Mayer, 1977; Müller, 1978; Geißler, 1983; Erikson & Goldthorpe, 1992; Müller & Pollak, 2004; Mayer & Aisenbrey, 2007; Pollak, 2010). To the best of my knowledge, however, the only studies of social fluidity in Germany which employ a comparable cohort design and a comparable dataset are the ones conducted by Müller and Pollak (2004) and Pollak (2010). Studying social fluidity using EGP classes across five 10-year birth cohorts of West Germans, Müller and Pollak find that immobility was particularly low among men, but not women, born before 1930, but decreased in the following cohort of men and women born in the 1940s only to increase continuously over the following three cohorts (Müller & Pollak, 2004, pp. 100-101). Fluidity levels were highest among men and women born in the 1960s. Further analysis showed that the decline in fluidity is mostly due to decreasing short- and long-range hierarchy as well as sectorial effects. After controlling for education, however, the change in the hierarchical effects became insignificant, leading Müller and Pollack to conclude that declining educational inequality caused the increase in social fluidity (Müller & Pollak, 2004, p. 106ff.). This general trend of increasing fluidity was corroborated by Mayer and Aisenbrey who studied fluidity of West Germans using life history data from the German life history study, but who employed a class scheme that though broadly resembling the EGP scheme, maps the status distinctions between laborers and employers more thoroughly (Mayer & Aisenbrey, 2007). Confirming the earlier results, Mayer and Aisenbrey find that social fluidity increased between cohorts born around 1920 and cohorts born around 1970. Unlike Müller and Pollak, they find especially low fluidity among women born in the 1920s.

While the aforementioned trends are expected among West Germans, trends among East Germans may differ substantially. In an early discussion of the openness of East Germany based on anecdotal evidence, Geissler (1983) argued that the German Democratic Republic (GDR) became more open in the first decade after World War II due to the revolutionary changes of the political, economic and educational systems beginning with the Soviet occupations. During this phase, the educational system became more inclusive through: early expansion and centralization of schools, the abolishment of school tracking and early selection, the replacement of three-quarters of the teachers with new teachers that frequently had working class backgrounds themselves, and the introduction of quotas which advantaged children from working class families and farmers in their access to higher education. At the same time, the almost total exchange of the former bourgeois elite with new ideologically and politically more suitable candidates opened up the crusted social structure inherited from the German Reich and the Weimar Republic (Kaelble, 1978).

After the first decade of this revolutionary cataclysm, the new elite appropriated upward mobility channels disproportionately to guarantee their children's success. While positive discrimination based on social origins was replaced by selection criteria based on ideological compliance and previous performance, special educational institutions (*Spezialklassen* and *Spezialschulen*) were founded in order to educate the future elite, which all too often were the children of the actual elite. In the following two decades, university enrollment was capped and declined in the 1970s and, possibly uniquely among similarly developed countries, service class positions did not markedly increase over the last decades of the GDR, further restricting opportunities for higher occupational attainment. As a result, birth cohorts born in the early 1950s and particularly the early 1960s experienced lower upward mobility, and social fluidity declined because of the limited upward mobility chances of individuals particularly from working class backgrounds born at the end of the 1960s (Mayer & Solga, 1994; Solga, 1995; Pollak, 2010).

In the more recent cohorts, in contrast, social fluidity may have been increased substantially by the great transformation following unification (Geißler, 1993). Forced mobility, especially in the political and scientific elite, and the soaring unemployment following the collapse of the GDR's outdated economy in the years after 1991, might have increased intergenerational mobility propensities substantially (Berger-Schmitt, 1997; Grünert, 1997; Mathwig & Habich, 1997). In fact, the fundamental system change only partially coincided with a personal change. While the service class of economic, political and academic elites was reduced after unification and some positions were filled with imports from the West (e.g. professorships in humanities), even more high status positions were recruited from the old elites, resulting in comparatively stable trajectories given the extent of the system change (Adler, 1997; Solga, 1997). Consequently, mobility chances were overall very similar between West and East Germany in spite of the fundamental differences between the systems (Mayer & Solga, 1994). Because I ignore mobility into unemployment and employ a cohort design that averages destination positions across several years, it is further unlikely that the period phenomenon of unification translates into a particularly pronounced cohort effect. Based on this brief review of earlier research, one might expect to find a trend towards growing fluidity in Germany, especially among the cohorts born around the middle of the 20th century who profited most from educational expansion in both German states. Because we can expect broad similarity among East and West Germans, both groups are studied together.[65]

Table 49 summarizes models which account for the cohort change of social fluidity among men and women in Germany. Model 1 represents the model of independence; model 2 additionally fits the full set of 64 non-redundant OD interaction parameters and postulates constant or uniform associations across cohorts. Model 3 equals the model of social fluidity introduced above fitted to the three-way table. Models 4 to 6 account for uniform cohort change in mobility chances. Model 4 fits a uniform difference (UniDiff) model, which assumes that there is a general, i.e. uniform, OD association pattern which changes across cohorts by specific multipliers. It includes all 64 non-redundant OD interaction parameters and 6 cohort-specific multipliers. The less complex model 5 restricts the cohort change to be linear, hence, includes only one additional parameter as compared to model 2. Model 6, finally, allows the social fluidity parameter to vary across cohorts using 13 effect parameters for men and 14 for women, and 6 cohort-specific multipliers for each effect. With only 357 and 350 degrees of freedom, model 6 is by far the least parsimonious model.

[65] Supplemental analyses show that social fluidity does not differ significantly between East and West Germans (ref. to all four model 3 in the lowest panels for each of the four tables in Table A. 7 in the appendix).

Table 49: Modeling of cohort change in social fluidity in Germany

M	*Parameters*	*df*	G^2	rG^2	*P-value*	*Δ*	*BIC*	*AIC*	*lin. UD*
					Men				
1	C,O,D,CO,CD	448	9,273.6	n.a.	0.0000	17.1%	4,505.2	12,511.3	
2	1 + OD	384	543.3	94.1%	0.0000	3.6%	-3,543.9	3,909.0	
3	1 + SF	435	929.5	90.0%	0.0000	5.3%	-3,700.5	4,193.2	
4	2 + φ_COD	378	430.9	95.4%	0.0310	2.9%	-3,592.4	3,808.6	
5	2 + $lin\varphi_C$OD	383	457.7	95.1%	0.0052	3.1%	-3,618.8	3,825.4	-0.056
6	3 + φ_CSF	357	730.7	92.1%	0.0000	4.5%	-3,069.1	4,150.4	
					Women				
1	C,O,D,CO,CD	448	5,319.0	n.a.	0.0000	13.1%	648.5	8,373.7	
2	1 + OD	384	567.3	89.3%	0.0000	3.8%	-3,436.0	3,750.0	
3	1 + SF	434	969.3	81.8%	0.0000	5.5%	-3,555.2	4,052.0	
4	2 + φ_COD	378	508.9	90.4%	0.0000	3.6%	-3,431.8	3,703.6	
5	2 + $lin\varphi_C$OD	383	513.6	90.3%	0.0000	3.6%	-3,479.2	3,698.2	-0.061
6	3 + φ_CSF	350	789.1	85.2%	0.0000	5.1%	-2,891.0	4,033.8	

UniDiff parameters for cohorts obtained under model 4

Cohorts								
	From:	1915	1925	1935	1945	1955	1965	1975
	To:	1924	1934	1944	1954	1964	1974	1984
Men		0.000	0.056	0.055	-0.147	-0.206	-0.193	-0.337
Women		0.000	0.056	-0.012	-0.133	-0.237	-0.267	-0.420

Note: Compiled dataset (refer to Ch. 6 for more information); N=41,928 men and 33,697 women. Notation: C, O, D, CO… = Fitting of the respective margins; INX: $\varphi_C\theta_{INX}$, $lin\varphi_C$: UniDiff parameter constrained to be linear, i.e. $lin\varphi_C = (1 + \varphi_C)\theta_{OD}$.

For both men and women, neither the independence model (model 1) nor the constant social mobility model (2) fit the data well. According to the likelihood ratio tests, both models represent significant deviations from the observed mobility data ($P - value < 0.0001$). In fact, the only sufficiently fitting models according to the likelihood ratio test statistic are the UniDiff models 4 and 5 for men. Relative to the model of independence, both UniDiff models reduce deviance by 95% for men and around 90% for women. Misclassification is reduced to 3% among men and 4% among women. Comparing the linear trend model (4) to the constant association model (2) yields a α -value of 0, indicating a similarly good fitting model preferrable due to its greater parsimony among both men ($G^2_{M2-M4} = 112.4, d.f._{M2-M4} = 7, \alpha = 0.000$) and women ($G^2_{M2-M4} = 58.4, d.f._{M2-M4} = 7, \alpha = 0.000$). This finding is in accordance with the results reported by Müller and Pollak (2004) in their cohort analysis. It differs, however, from their finding about stable period trends corroborated by the country comparisons of Breen and Luijkx (2004). Using the EGP scheme, they could not find for either West German men or women a significant increase in model fit by assuming uniform change of social fluidity across periods (Müller & Pollak, 2004, p. 92). While design differences are unlikely to be responsible for the discrepancy in reported results[66], their use of the EGP scheme might have concealed the increase in fluidity through lateral mobility. Before turning to the analysis of change, the overall evolution of social fluidity is described in more detail. The cohort change parameters both from model 4 are presented in the bottom panel of Table 49 and are graphically displayed in Figure 35.

[66] Müller and Pollack employed a period design and studied only data from West German men and women. Finally, they used age 20 as a lower bound for inclusion into the analyses. It is, however, unlikely that these differences are the cause of the diverging results. In fact, employing a period design also results in accepting the model of uniform change over the constant association model for both genders with our samples (analysis not shown). While we include East Germans, additional analyses have shown that the OD association is not significantly different between both populations (ref. to all four model 3 in the lowest panels for each of the four tables in Table A. 7 in the appendix) once two-way margins are fitted. Finally, the higher age limit for sample inclusion applied here should result in lower fluidity because the OD association is generally weaker in younger ages, most probably due to career mobility after entering the labor market (Müller & Pollak, 2004).

Figure 35: UD parameters for change in social fluidity in Germany

Note: Compiled dataset (refer to Ch. 6 for more information). UniDiff parameters are obtained under model 4 in Table 49.

Among men and women, social fluidity initally increased between the reference cohort one and the third cohort ($\varphi_{C=3}$ equals 0.055 for men and -0.012 for women). Over the following two cohorts fluidity decreased parallel ($\varphi_{C=5}$ equals $-\ 0.206$ and -0.237). Among men and wome born after 1955, social fluidity developed differently. Among men, fluidity remained mostly stable over the cohorts five and six, whereas fluidity among women still increased modestly. In the last cohort born between 1975 and 1984, fluidity among both men and women again increased more strongly ($\varphi_{C=7}$ equals $-\ 0.337$ and -0.420). The final increase in intergenerational permeability is probably due to the younger age range for which class destinations are obtained here.

Social change and the development of social fluidity

The puzzling decrease of social fluidity among German men after the first cohort has been studied by Müller and Pollack in more detail (Müller & Pollak, 2004, pp. 100-102).[67] They argue that the higher fluidity of the cohorts born before the 1930s is driven by WWII-related refugees and expellees from farm and petty bourgeoisie backgrounds who escaped their 'class fate' by losing their future prospects alongside the German Reich's Eastern Territories (Müller & Pollak, 2004, pp. 100-102). Why the mobility inducing effect should be limited to the oldest cohort remains, however, controversial because such an effect arguably especially affects the cohorts born within and after the war because they grew up without access to their families' resources, whereas the older cohorts went through childhood in still advantageous positions, only to lose their parent's property thereafter. Nevertheless, we can accept this explanation for the slightly higher immobility in the second and third cohort of men. However, it is unlikely that the lower fluidity of women in the second cohort is due to the same effect. Critical (feminist) analyses of agricultural businesses show that even today patrilineal inheritance systems are widespread in farming, hence, the social fluidity of women should not be particularly affected by the loss of parental property regardless of other detrimental effects the forced emigration and expropriation might have had on their life chances (Shortall, 1992; Price, 2010).

The particularly low level of fluidity in the cohort born between 1925 and 1934 may also result, in contrast, from the political climate during the time of labor market entrance and early careers in post-war Germany. During the restoration phase under Chancellor Adenauer, state law and employment practices "reaffirmed the old hierarchy of career tracks, based on formal education, reduced opportunities for upward mobility, and helped shore up the system of social stratification" (Moeller, 1997, p. 191). Especially the emphasis on educational credentials might have affected mobility opportunities and decreased fluidity for the cohort that entered the labor market during this time. That the mobility of women in this cohort was relatively lower than either of the other cohorts may have resulted from the almost grotesque gender discrimination in the reconstruction era. In the post-war years, public administrators deliberately discharged women that were holding "men's jobs" or were considered double earners in order to replace them with war veterans or other men (Garner, 1995, p. 52ff.). Entrance barriers to public services, however, also mean that women did not have access to the internal labor

[67] Although the truth of the following interpretation is not conditional on statistical significance, we note that using "quasi standard errors" (Firth, 2003), we find that there is no significant difference between the first three cohorts, whereas fluidity in all other cohorts is significantly lower than in the reference cohort.

markets in civil service with its job ladders and other upward mobility opportunities (DiPrete, 1989: esp. ch. 7). Nevertheless, there were some jobs and industries, for instance, telephone operators in postal services, which remained open to women and where career mobility was possible. Such careers, however, came at a price. Female civil servants were held to such standards as being (voluntarily) absent from marriage and choosing celibacy (Moeller, 1997, p. 190). Additionally, women were severely restricted in their access to vocational training in the immediate post-war era (Mayer & Aisenbrey, 2007). In total, the decrease in fluidity, especially among women of the second cohort, may well be a side product of the reduced opportunities due to discriminatory hiring and personnel policies in the post-war reconstruction era.[68]

An alternative explanation for the increase of social fluidity among women has been presented by Goldthorpe and Mills (2004) in their analyses of fluidity in Britain. They argue that the increase in women's fluidity might well be a compositional effect due to the increasing labor market participation of women. Based on the finding that women frequently experience downward mobility relative to their origins upon re-entrance into the labor market after a phase of childrearing, they argue that the increase of female employment might result in the increase of such "perverse" fluidity (Goldthorpe & Mills, 2004, p. 209). At least in the early cohorts, such an interpretation is hardly confirmed by the data. While the fluidity chances are equal between the first and the third cohorts of women, early motherhood and maternity differed substantially. While 91% of women born between 1919 and 1921 were childless and 90% were unmarried at age 20, the same is true for only 77% and 65% of women born between 1944 and 1948 (Blossfeld & Jaenichen, 1992, p. 308). Both factors are likely to force "perverse" fluidity because they prevent, or at least disrupt, post-secondary educational trajectories and occupational careers. In contrast, the low fluidity levels in the second and third cohorts and the following increase in fluidity corresponds rather nicely to the historical explanations focusing on the political and economic conditions in the period in which the respective cohorts entered the labor market.

The following increase of social fluidity among men and women born after WWII is likely to result from the educational expansion which decreased inequality of educational opportunity in Germany during the 1960s and 1970s (Müller & Haun, 1994; Henz & Maas, 1995; Hartmann, 1998). Arguably, the increase of educational institutions, the public focus on largely excluded groups (e.g., women

[68] A more coherent test would in fact be to study women's class attainment relative to their mother's class. In such a design, we could study fluidity net of the gender differences resulting from the choice of father's class as social origin. Alas, we do not have enough data with information on mother's class position to facilitate the respective analysis for older cohorts.

born in rural, catholic regions), increased compulsory schooling, and the turn towards more liberal societal norms have surely been conducive to increasing fluidity in Germany, particularly for women (Breen et al., 2009, 2010). At the same time, the post-war cohort also profited from the near full-employment that allowed for upward mobility once the required educational degrees were attained. However, we also find that the increase in fluidity stalled in the next to last cohort of individuals born between 1965 and 1974 who went through the educational system in the 1980s and 1990s. The lack of any further increase in fluidity among men in these two cohorts may likely be due to less favorable labor market conditions during the time of stagflation and growing unemployment. Only in the last cohort do we again find a pronounced increase of fluidity, arguably due to the younger average age of respondents possibly resulting in an overestimation of social fluidity (Müller & Pollak, 2004, p. 99f.).

Thus, the whole picture is one of increasing social fluidity especially in the times of educational expansion and full employment. While we cannot compare the UniDiff parameters directly across gender[69], we observe for men and women a comparable increase in fluidity of roughly 6% per cohort (models 5 in Table 49). Due to the partial stability of mobility chances among men, however, the linear UniDiff model (4) improves model fit (given its greater parsimony) over the uniform change model (5) significantly only for women ($G^2{}_{M5-M4} = 4.7, d.f._{M5-M4} = 7, \alpha = 0.453$), but not for men ($G^2{}_{M5-M4} = 27, d.f._{M5-M4} = 7, \alpha = 0.000$). In fact, the continuous increase of fluidity among women also observed in the last cohorts renders the motherhood explanation unlikely due to the lower age and, consequently, lower rate of child birth and marriage. The continuous increase of fluidity among women after the third cohort might rather result from the increasing employment opportunities in higher post-industrial classes which, in combination with educational expansion and the change of traditional gender norms, more frequently allowed for upward mobility than in earlier times by weakening the barriers to women's fluidity substantially. Arguably, the increase of fluidity among men similarly resulted from increasing mobility into higher but also lower post-industrial classes.

[69] A UniDiff model assumes a uniform pattern of social fluidity $\left(\theta_{i,j}^{OD}\right)$ across cohorts, which differs by cohort only by the cohort-specific UniDiff parameter (φ_C). While such a model allows for the comparison of social fluidity between cohorts relative to the average fluidity level, the uniform pattern of origin-destination associations is sample specific and reflects the used normalization rule (Xie, 1992). Consequently, the cohort parameters (φ_C) are scaled and not easily comparable across samples with different social fluidity patterns.

Testing the potential causes for the change in social fluidity

While I have argued above in favor of institutional and social changes as causes for the development of social fluidity in Germany, this section will try to model these changes in terms of the social fluidity model introduced above (Ch. 10.1). The favored explanation was that fluidity trends most likely result from the institutional changes that affected the educational careers and (early) labor market trajectories. The following analysis of fluidity effects provides further evidence for this assumption. From the fit statistics in Table 49, it becomes clear that both the constant (3) and the variant (6) social fluidity models fit less well to the observed fluidity trends than either of the UniDiff models 4 and 5. The constant social fluidity model achieves only a deviance reduction of 90% for men and 82% for women and misclassifies 5.3% of men and 5.5% of women. Only according to the BIC criterion it is the best fitting model (because it is the most parsimonious). Moreover, the model in which effect parameters are allowed to vary across cohorts (6) fit worse than either of the Unidiff models for men and women. However, allowing the effect parameters to vary across cohorts reduces deviance relative to model 3 by roughly 26% for men and 19% for women, and significantly increases model fit as a likelihood ratio test shows for men ($G^2_{3-6} = 187.4, d.f._{3-6} = 78, \alpha = 0.000$) and women ($G^2_{3-6} = 180.2, d.f._{3-6} = 84, \alpha = 0.000$). The limited overall fit indicates that some change in the neutral fluidity cells is not captured by the model.

Table 50: Changing mobility barriers and channels, German men

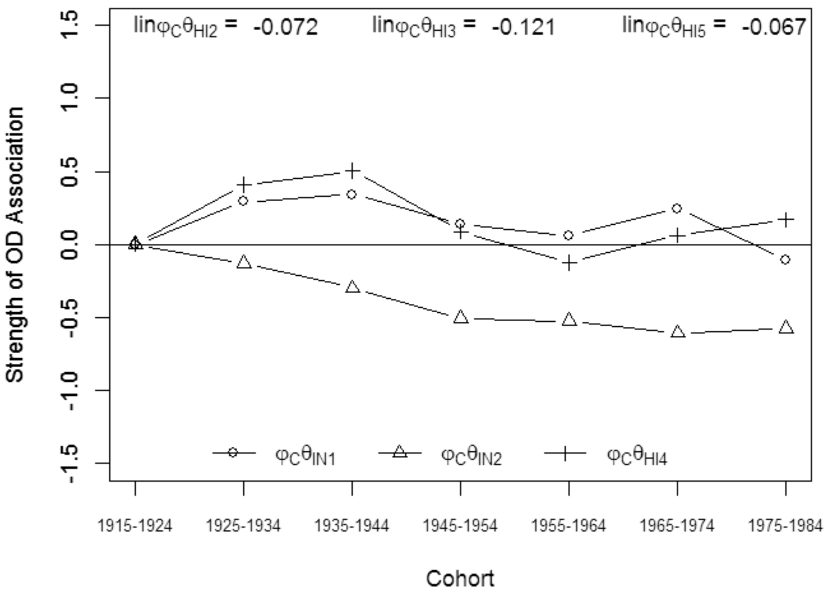
M	Parameters	df	G²	rG²	P-value	Δ	BIC	AIC	N	Vs. M3 rG²	Vs. M3 α	$l\varphi_C$ *
7	3 + φ_CIN1	434	880.0	90.5	0.000	5.1	-3,739.4	4,145.7	41,928	5.3	0.000	-0.09
8	3 + φ_CIN2	434	868.4	90.6	0.000	5.1	-3,751.0	4,134.1	41,928	6.6	0.000	-0.10
9	3 + φ_CIN3	434	923.8	90.0	0.000	5.3	-3,695.6	4,189.5	41,928	0.6	0.017	-0.09
10	3 + φ_CHI1	434	925.6	90.0	0.000	5.3	-3,693.8	4,191.3	41,928	0.4	0.047	-0.12
11	3 + φ_CHI2	434	916.1	90.1	0.000	5.2	-3,703.3	4,181.8	41,928	1.4	0.000	-0.12
12	3 + φ_CHI3	434	904.8	90.2	0.000	5.3	-3,714.6	4,170.5	41,928	2.7	0.000	-0.12
13	3 + φ_CHI4	434	916.7	90.1	0.000	5.3	-3,702.7	4,182.4	41,928	1.4	0.000	-0.09
14	3 + φ_CHI5	434	900.1	90.3	0.000	5.1	-3,719.3	4,165.8	41,928	3.2	0.000	-0.11
15	3 + φ_CHI6	434	926.2	90.0	0.000	5.3	-3,693.2	4,191.9	41,928	0.4	0.068	-0.09
16	3 + φ_CAF1	434	926.9	90.0	0.000	5.3	-3,692.5	4,192.6	41,928	0.3	0.106	0.11
17	3 + φ_CAF2	434	924.4	90.0	0.000	5.3	-3,695.0	4,190.1	41,928	0.6	0.024	-0.04
18	3 + φ_CCE1	434	926.7	90.0	0.000	5.3	-3,692.7	4,192.4	41,928	0.3	0.095	0.22
19	3 + φ_CCE2	434	929.2	90.0	0.000	5.3	-3,690.2	4,194.9	41,928	0.0	0.561	-0.04

Note: Reference model 3 (top panel) is taken from Table 49. *linear parameters estimated under separate models. Fit statistics available from the author.

Following the modeling strategy developed by the authors of the various country analyses compiled in Breen (2004a), each parameter of the social fluidity model is allowed to vary across cohorts while holding the other parameters constant (7-19). By comparing which parameter's variation significantly improves fit, I may detect the nature of the change in social fluidity. I first study change among German men. Initially I test whether the change in each barrier can be parsimoniously modeled as a linear process and then test whether the more complex UniDiff model significantly improves model fit (results not shown). Model fit parameters in Table 50 inform us about the usual model fit statistics and in the last three columns about the deviance reduction (rG²) relative to the social fluidity model 3, assuming constant effects across cohorts, its statistical significance (α) and the obtained linear UniDiff parameter ($l\varphi_C$). Accounting for cohort variation in all but four parameters – mobility barriers between the service working classes and all higher classes (HI6), positive affinity (AF1), and the country-specific effects (CE1 and CE2) – results in (at $\alpha = 0.05$) more parsimonious, hence, significantly better fitting models for the change of the fluidity pattern of German men. In fact, all significant UniDiff parameters point towards greater social openness. However, substantial improvements in model fit ($rG2 \geq 1\%$) are only observable with regard to models 7, 8 and 11 through 14. The results therefore indicate that the positive affinities between semi-professionals and professionals, as well as between several employee classes and the self-employed, and the nation-specific mobility channels and barriers, have not changed among German men across cohorts.

From the six substantial and significant time-variant effects, three change unevenly across cohorts, whereas the other three are preferably summarized by a linear multiplicative term. The resulting model 20 (Figure 36) reduces deviance relative to the independence model by 92%, hence accounting for nearly all of the fluidity change observable under model 6, which allows for uniform change in all 13 parameters. Given that model 20 uses 57 degrees of freedom less, the difference in model fit is statistically significant. Using the BIC and AIC criteria, model 20 is also preferable to any of the more parsimonious linear UniDiff models 7 through 19.

Figure 36: Best model 20 for changing fluidity in Germany, men



Note: Model allows for uniform heterogeneous change over cohorts of IN1, IN2 and HI4, and linear change of HI2, HI3 and HI5. Other parameters are held constant across cohorts. Model statistics: $df = 414$, $G^2 = 786.1, rG^2 = 91.5\%, P - value = 0.000$, $\Delta = 4.7\%, BIC = -3{,}620.4, AIC = 4{,}091.8, N = 41{,}928$.

Consequently, the general increase in fluidity among men is likely to be driven by the continuous decline of general between-segment barriers (HI2) and long-range within-segment barriers (HI3), as well as the decreasing barriers around manual working classes (HI5) allowing for more fluidity between the most numerous low classes and all higher classes. While these effects increased fluidity across all cohorts, the above-mentioned pattern of initially decreasing fluidity and the following decreasing fluidity are best described through the evolution of inheritance effects (HI1, HI2) and between-segment long-range mobility barriers. In the second and third cohorts, class inheritance and between-segment mobility barriers increased only to decrease thereafter relative to the first cohort. These effects work well with the above offered explanation for the strengthening of the origin-destination association in the early post-war years. While women were relegated to lower classes, men could increasingly attend positions similar to their fathers (IN1) and in fact refrain from moving into the more 'female' post-industrial classes (HI4). At the same time, the immobility association (IN2) among the highest classes decreased over the first three cohorts, which is in line in the second cohort with the interpretation of war-related upheavals resulting in the loss of parental capital, particularly in the propertied class. Based on Müller and Pollack's analysis of the role of education on social fluidity in Germany, the further decrease of the inheritance effect in the propertied classes (IN2) in the third cohort, and the strong decline of between-segment long-range mobility barriers (HI4) in the fourth and fifth cohorts, can be interpreted as resulting from the equalizing effect of mass education kicking in in the 1960s and allowing mobility from industrial manual origins into the expanding (public) professional and semi-professional sectors (Müller & Pollak, 2004). Finally, a reason for the relatively flat development of mobility chances at the end of the observation period in Germany results from the increasing between-segment mobility barriers which prevented long-range fluidity between the (semi-)professional and industrial working classes, as well as the managerial or clerical positions and the service working classes (HI4). Reasons for this could be the growing social inequalities and the contraction of the opportunity structure for mobility into public positions following three decades of austerity politics (Butterwegge et al., 2008; Emmenegger et al., 2012b).

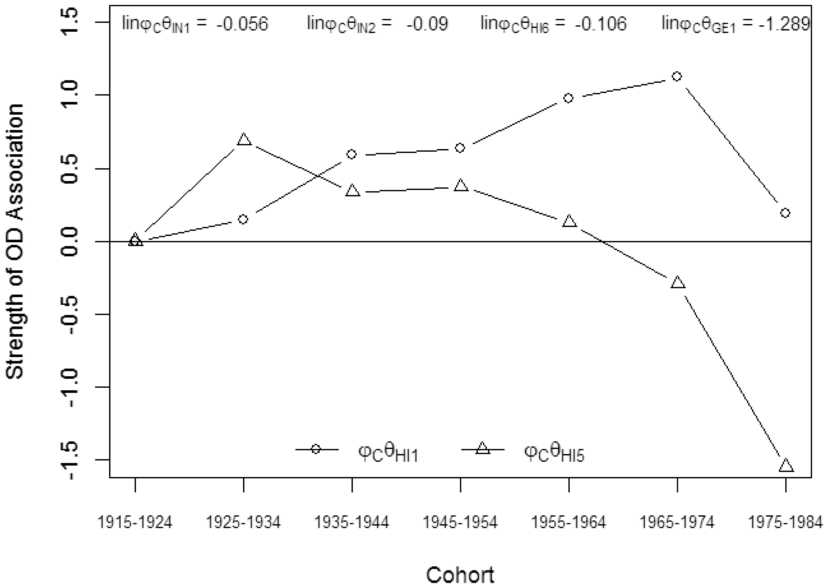
Table 51: Changing mobility barriers and channels, German women

M	Parameters	df	G^2	rG^2	P-value	Δ	BIC	AIC	N	Vs. M3 rG^2	Vs. M3 α	$\boldsymbol{l\varphi_C}$*
7	$3 + \varphi_C$IN1	433	938.4	82.4	0.0000	5.4	-3,575.7	4,023.1	33,697	3.2	0.000	-0.16
8	$3 + \varphi_C$IN2	433	909.3	82.9	0.0000	5.4	-3,604.8	3,994.0	33,697	6.2	0.000	-0.10
9	$3 + \varphi_C$IN3	433	969.2	81.8	0.0000	5.5	-3,544.9	4,053.9	33,697	0.0	0.710	-0.04
10	$3 + \varphi_C$HI1	433	968.6	81.8	0.0000	5.5	-3,545.5	4,053.3	33,697	0.1	0.398	0.05
11	$3 + \varphi_C$HI2	433	968.9	81.8	0.0000	5.5	-3,545.2	4,053.5	33,697	0.0	0.506	-0.03
12	$3 + \varphi_C$HI3	433	966.8	81.8	0.0000	5.5	-3,547.3	4,051.5	33,697	0.3	0.115	-0.09
13	$3 + \varphi_C$HI4	433	963.0	81.9	0.0000	5.5	-3,551.1	4,047.7	33,697	0.7	0.012	-0.07
14	$3 + \varphi_C$HI5	433	958.7	82.0	0.0000	5.5	-3,555.4	4,043.4	33,697	1.1	0.001	-0.10
15	$3 + \varphi_C$HI6	433	960.0	82.0	0.0000	5.5	-3,554.1	4,044.7	33,697	1.0	0.002	-0.12
16	$3 + \varphi_C$AF1	433	967.2	81.8	0.0000	5.5	-3,546.9	4,051.9	33,697	0.2	0.147	0.12
17	$3 + \varphi_C$AF2	433	967.3	81.8	0.0000	5.5	-3,546.8	4,051.9	33,697	0.2	0.152	0.09
18	$3 + \varphi_C$CE1	433	969.1	81.8	0.0000	5.5	-3,545.0	4,053.8	33,697	0.0	0.672	-0.04
19	$3 + \varphi_C$CE2	433	969.2	81.8	0.0000	5.5	-3,544.9	4,053.9	33,697	0.0	0.774	-0.03
20	$3 + \varphi_C$GE1	433	955.9	82.0	0.0000	5.5	-3,558.2	4,040.6	33,697	1.4	0.000	-0.13

Note: Reference model 3 (top panel) is taken from Table 49. *linear parameters estimated under separate models. Fit statistics available from the author.

Following the same strategy for women leads to slightly different results (Table 51). Mobility barriers and channels are less prone to change among women than among men. Allowing for (linear) cohort variation in the first two inheritance effects (IN1, IN2), the last three hierarchy effects (HI4, HI5 and HI6), and the gender effect (GE1), significantly improves model fit. While variation in HI4 is negligible due to a lack of substantial increase in model fit, the between-segment long-range mobility barrier effect (HI5) does substantially add to model fit if it is allowed to vary heterogeneously, i.e., non-linearly, between cohorts. Additionally, within-segment mobility barriers (HI1) also changed significantly and substantially across cohorts, though not linearly. Hence, the best fitting representation is obtained by fitting a model which assumes linear change in IN1, IN2, HI6 and GE1, but cohort-specific change in HI5 and HI6. Figure 37 presents all UniDiff parameters from that model. Fitting the 12 cohort-specific parameters and the four linear UniDiff parameters increases model fit significantly as compared to the cohort invariant model of social fluidity (3) ($G^2_{3-20} = 105.7, d.f._{3-20} = 16, \alpha = 0.00$).

Figure 37: Best model 21 for changing fluidity in Germany, women



Note: Model allows for uniform heterogeneous change over cohorts of HI1 and HI5, and linear change of IN1, IN2, HI6 and GW1. Other parameters are held constant across cohorts. Fit statistics for model 20: $df\ =\ 418,\ G^2 = 863.6, rG^2 = 83.8\%, P - value\ = 0.000,\ \Delta = 5.3\%, BIC = -3494.1, AIC = 3978.2, N = 33{,}967$.

Studying the effects, we note that uniform class inheritance (IN1) and inheritance among the propertied and high classes (IN2) declined continuously, although the latter drove fluidity increases much less compared to men (Figure 36).[70] Moreover, fluidity was driven by a pronounced linear increase in fluidity between service working class positions and all higher classes (HI6), and the declining association between managerial origins and unskilled manual destinations (GE1). Studying the effects pertaining to this managerial protection net shows that the respective association weakened for most cohorts, only to grow again in the last cohort. The

[70] While we cannot compare the parameter estimates between samples, we can compare the relation between IN1 and IN2 between men and women. Among men, IN2 is nearly double the size of IN1, whereas the former accounts for less than one-fifth of the latter among women. Thus, the change of the general level of inheritance relative to the particular inheritance in the propertied classes is much lower for women than among men, most probably due to continuing gender segregation imposing persistent non-economic barriers on women to achieve class maintenance relative to their fathers' positions.

pronounced strong decrease of barriers pertaining to mobility from or into service working classes (HI6) might be interpreted in two ways. First, educational expansion might have decreased barriers for women to enter the mostly education-mediated higher professional and semi-professional positions, especially if they come from service backgrounds which are frequently in more urban areas and in which the general education level is higher as compared to manual workers (Ch. 7.2). At the same time, and more likely given the low frequency of parental origins in the service working classes, fluidity might also increase because women from higher backgrounds become more likely to enter the growing post-industrial and largely female working classes over time.

While most of the increase in fluidity is explained by the linear effects, the cohort-variant parameters can further help to understand the fluidity pattern observed in Figure 38. The decrease of fluidity among women in the second cohort coincides with an increase in mobility barriers preventing fluidity between manual classes and all other higher classes (HI5). Arguably, women's overall fluidity declined in the post-war era because they were relegated to the lowest manual and service positions due to the high labor market segregation and a lack of vocational training opportunities. In fact, 20% of women from skilled manual origins and 30% of women from unskilled manual origins were confined to (primarily unskilled) manual work in this cohort, whereas in other cohorts mobility more frequently lead to clerical or unskilled service positions (Table A. 3). The following weakening of these barriers from the fourth cohort onwards most likely results from the beneficial effects of educational expansion for women, specifically from rural and manual backgrounds (Henz & Maas, 1995). Once cohort variation in HI6 is allowed for, a similar though considerably weaker upswing in the early cohorts is observable. This provides additional support for the argument that women of the older cohorts who entered the labor market in the early post-war years actually faced severe limitations in their opportunities for upward mobility. Additionally, the evolution of the working class barriers represented by HI5 and HI6 support the conclusion that the uptick in fluidity among women in the last cohort is driven by greater mobility propensities of women to leave lower class origins.

Finally, within-segment barriers (HI1) net of all other effects increased for all but the last cohort of women born in the last century. Paradoxically, this means that the increase in overall fluidity was somewhat offset by increasing hierarchical barriers between low, middle and high classes. This finding, nevertheless, complements Charles' analyses which have shown that the same economic structures and institutions which contribute to women's greater integration into the labor market also foster gender-segregation within the occupational structure and, partially, educational system (Charles, 1992; Charles & Bradley, 2002). Applied to the gender distribution among IPICS classes, we can observe, for example, that the unskilled manual class increasingly became a male-dominated class. While 53% of unskilled manual laborers in the first cohort were women, the same was true for less than 30% in the last cohort. This increasing segregation might have affected the probability of short-range mobility over the last century, given that the skilled manual class is by far the most common origin in each cohort (>30%). That the increase in HI1 is not very substantial for female relative mobility chances, however, is clear from the overall increasing fluidity among women and the lack of significant change in the between-segment barriers (HI2).

Summing up, social fluidity increased significantly across cohorts among both German men and women. While women's fluidity increased continuously, fluidity only increased among those men that were born immediately after WWII. The different models applied to the cohort by destination by origin table indicate that the decrease of immobility and declining hierarchical barriers play an important part in explaining this decrease. While for men, crumbling hierarchical barriers and inheritance regimes further increase mobility chances, women's growing mobility chances are mostly driven by an increase of fluidity between higher classes and the service working classes and decreasing inheritance propensities. While the general increase in female mobility might be desirable, the results cannot hide that the decrease in immobility and the strong within-segment barriers demonstrate the high gender barriers preventing women from status maintenance.

11.4 Summary

After developing in the last chapter a model of social fluidity whose parameter effects capture horizontal and vertical mobility propensities, this model was employed to German data in the foregoing chapter. The following time-invariant analyses of social fluidity in Germany confirmed the most authoritative findings on the pattern of social fluidity in Germany (Erikson & Goldthorpe, 1992; Müller & Pollak, 2004). Inheritance effects, for instance, are one of the strongest impediments to fluidity in Germany and hierarchical barriers are strong, especially those limiting long-range fluidity or fluidity between the manual working classes and middle classes. The presented results, however, go further by showing that fluidity differs between the industrial and the post-industrial working classes. Mobility barriers pertaining to the former are particularly high, lending further – and more directed – support to the assumption that mobility barriers between manual workers (*Arbeiter*) and other employees (*Beamte*, *Angestellte*) are particularly strong in Germany (Erikson & Goldthorpe, 1992). Because IPICS differentiates between industrial and post-industrial segments, it could further be shown that mobility barriers are not only hierarchical but also comprise a horizontal element. Within-segment barriers to relative mobility are in general smaller than between-segment barriers for both men and women. This supports the argument that daily work experience affects fluidity independently from the available resources. A formal test comparing the EGP with the IPICS scheme, finally, demonstrates that the association between origins and destinations is structured by more than the vertical differences mapped by the EGP scheme.

The following analysis of cohort change in relative mobility chances supported that fluidity increased for successive birth cohorts covering most of the last century. This finding confirms earlier analyses which only found tentative indications for an increase in fluidity in Germany, or were more cautious in their interpretations of their findings (Hartmann, 1998; Müller & Pollak, 2004). For men and partly for women, however, the increase in fluidity was everything but evenly distributed among the cohorts under study. While mobility chances decreased for both sexes in the cohorts that entered the labor market during or shortly after WWII, mobility chances increased thereafter, presumably due to the inheritance reducing effects of full-employment among men and educational expansion among men and women and the decreasing working class barriers faced by women. However, the stability and, among women, even increase of various hierarchical effects, and the lack of a more pronounced increase in fluidity in the more recent cohorts also testify to the continuing rigidity of the German class system during the more recent period of dualization.

12 Social fluidity in the United States of America

After studying social fluidity in Germany in the chapter before, the present chapter is dedicated to the analysis of social fluidity in the United States. In the following, the American variant of the social fluidity model will be explained. Initially, the model is applied to American data (Ch. 12.1). Like Germany, the social fluidity model fits quite well to the data and corresponds to the expectations outlined above in the elaboration of the model, which well be briefly reviewed. After showing that the horizontal differentiation makes sense in a substantive sense, it will also be tested against the EGP scheme (Ch. 12.2). The following section of this chapter is designated to the analysis of change in social fluidity in the U.S. (Ch. 12.3). A brief summary of the main results draws the chapter to a close (Ch. 12.4).

Table 52 presents the assumed effects that shape the pattern of social fluidity in the United States. The two inheritance parameters (IN1, IN2) are at work in the cells on the diagonal pertaining to social reproduction. In contrast to these effects, it is easy to understand the rationale behind the offsetting or strengthening country-specific effects (CE1, CE2) and the (dis-)affinity terms (AF1, AF2). In the U.S., professionals arguably have a higher propensity and managers and administrators a lower propensity than farmers for particular immobility, which is why the inheritance effects in these cells are strengthened by the positive CE1 and offset by the negative CE2 effects. The (dis-)affinity terms on the other hand are mostly associated with combinations of independent and employee classes and account for differences in social fluidity between these locations (for the arguments motivating these effects refer to Ch. 10.1). Parameters are again estimated against the 11 cells constituting the neutral fluidity level (by virtue of not being fitted for any parameters). They provide the arbitrary reference level relative to which parameters become comparable.

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DOI 10.1007/978-3-658-14785-3_12

Table 52: Barriers and channels shaping social fluidity in the U.S.

	M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB/ FAR
M&A	IN1,IN2, CE2	HI1	HI1, HI5	HI1,HI3,HI5, GE1	IN3	CE1	HI2, HI6	HI2,HI4 ,HI6	AF1
C&O	HI1	IN1	HI5	HI1,HI5,AF2	HI2	HI2	HI6	HI2,HI6	NF
SMW	HI1,HI5	HI5	IN1	HI1	HI2, HI5	HI2, HI5	NF	HI2	NF
UMW	HI1,HI3, HI5	HI1, HI5	HI1	IN1	HI2,HI4, HI5	HI2,HI4, HI5	HI2	NF	NF
PFS	IN3	HI2	HI2, HI5	HI2,HI4,HI5, CE2	IN1,IN2, CE1	AF1	HI1, HI6	HI1,HI3 ,HI6	AF1
SPF	NF	HI2,CE2	HI2,HI5, AF2	HI2,HI4,HI5	AF1	IN1	HI1,HI6, CE2	HI1,HI3 ,HI6	NF
SSW	HI2,HI6	HI6	NF	HI2,AF2	HI1,HI6	HI1,HI6	IN1	HI1	CE1
USW	HI2,HI4, HI6	HI2,HI6, CE1	HI2	NF	HI1, HI3, HI6	HI1,HI3, HI6	HI1	IN1	AF2,CE 1
PeB/ FAR	AF2	NF	AF1	AF1	AF2	CE2	NF	CE1	IN1, IN2

Note: For more information refer to text and parameter matrices in Tables 37 to 40 and Table 42. NF = Reference fluidity level for parameter estimates.

12.1 Barriers and bridges: Social fluidity in the United States

The same procedure as explained previously for Germany is applied to test the fit of the social fluidity model developed in Ch. 10 for the mobility data of Americans. Two models are run for each gender on the compiled dataset to test the validity behind the social fluidity model. Model 1 assumes independence of origins and destinations, hence represents the baseline against which the social fluidity model is tested. Model 2 fits the constant social fluidity model outlined above. Model fit and parameter estimates of both models are presented in Table 53. Results closely resemble the respective findings for Germany.

As expected, the model of independence fit the data for neither gender. Restricting all OD association parameters to equal zero result in a bad fit for women and an even worse fit for men. Deviance is up to 3,300 for women and 8,300 for men. Moreover, more than 10% of men and women in each table would have to be reassigned to other classes for the mobility pattern to satisfy the assumption about origin-independence of class attainment. In contrast, the social fluidity model 2, which parsimoniously summarizes the 81 origin-destination associations in 13 parameters for men's and 14 parameters for women's mobility table, fits the observed data well. Deviance is reduced relative to the independence model by 96% among men and 92% among women. The dissimilarity index is down to below 3% for both genders and the BIC values are negative, implying a significant fit given the number of degrees of freedom. However, the global likelihood ratio test statistic still finds that the saturated model and the social fluidity model differ significantly. Once we standardize the deviance to the same sample size of the German CASMIN sample in the *constant flux* (3.890), it becomes clear that the social fluidity model is a satisfactory representation of the observed fluidity pattern. Deviance is reduced from 481 to 18 for men and from 292 to 22 for women in the smaller counterfactual tables, and the likelihood ratio test assures us that the pattern is close enough to the pattern in the saturated model to prefer the far more parsimonious fluidity model ($p - value > 0.05$).

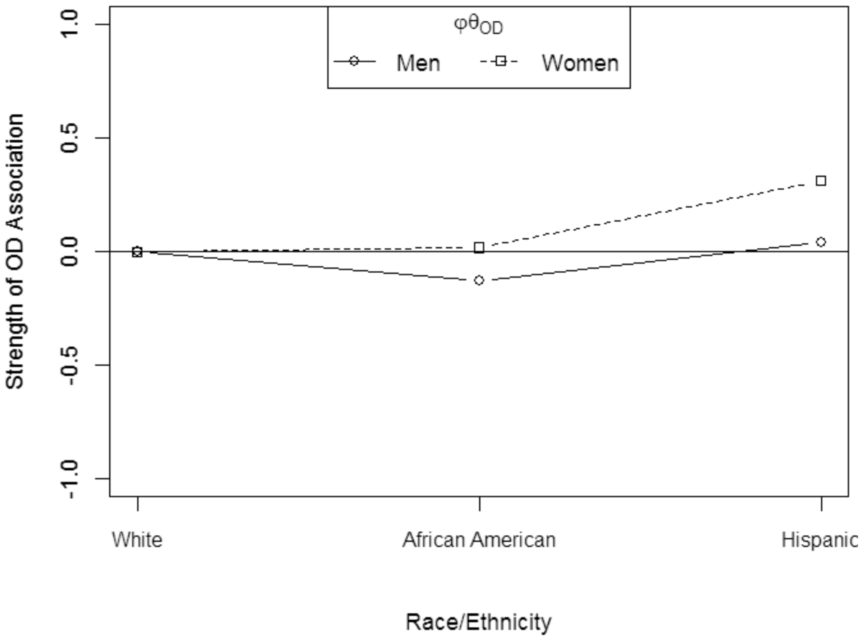
Table 53: The general pattern of social fluidity in the United States

	M	*Parameter*	*df*	G^2	rG^2	*P-value*	Δ	*BIC*	*AIC*	$G^2(S)$	*P-value*
Men	1	O,D	64	8311.6	n.a.	0.0000	13.4	7600.2	9010.9	480.8	
	2	O,D,+SF	51	318.8	96.2	0.0000	2.6	-248.1	1044.2	18.4	1.0000
Wom	1	O,D	64	3268.1	n.a.	0.0000	10.2	2584.4	3921.3	291.6	
	2	O,D,+SF	50	247.8	92.4	0.0000	2.9	-286.3	929.0	22.1	0.9998

Note: Compiled dataset (refer to Ch. 6 for more information). N=67,251 men and 43,596 women. We again standardized the deviance (G2(S)) using Schwartz's formula to 3,890 cases.

While the lack of fit of the model of social fluidity might be due to the high number of observations and, correspondingly, noise in the data, it might also result from systematic variation in the mobility process of different subgroups within the data. Next to gender and class, race is the other significant ascriptive source of stratification in the United States due to its long history of racial subjugation (Blau & Duncan, 1967; Featherman & Hauser, 1976; Hout, 1984a). To test whether the fluidity pattern is in fact similar between racial and ethnic groups (1984a), the social fluidity model has also been fitted separately to samples of African Americans, Hispanics and white Americans (not shown). While parameters of these models are generally very similar to the ones discussed below, all social fluidity models but the ones estimated for the white American subsample significantly improve model fit. Thus, it is likely that the social fluidity in fact fails to fit simply because of the large number of cases in the sample.

Figure 38: Fluidity Differences by ancestry in the United States



Note: UniDiff parameters from models separately calculated for men and women using the compiled dataset (refer to Ch. 6 for more information). Model statistics: Men: $df = 126$, $G^2 = 224.3$, $rG^2 = 98.4\%$, $P-value = 0.984$, $\Delta = 1.5\%$, $BIC = -1{,}176.3$, $AIC = 2{,}017.6$, $N = 67{,}251$ ($Whites = 53{,}699$; $African\ Americans = 9{,}539$ $Hispanics = 4{,}013$) and women: $df = 126$, $G^2 = 218.3$, $rG^2 = 96.9\%$, $P-value = 0.000$, $\Delta = 2.2\%$, $BIC = -1{,}127.7$, $AIC = 1{,}913.1$, $N = 41{,}928$ ($Whites = 32{,}094$; $African\ Americans = 7{,}853$ $Hispanics = 3{,}649$)

The study of differences in the overall strength of the OD association further support this claim. Figure 38 reports UniDiff parameters for each racial or ethnic group for men and women relative to white Americans, as well as model fit statistics in the note below based on the three-way table of origin by destination by race. Obviously, social fluidity does not differ significantly between white and African Americans in terms of the average associational strength even though the fluidity pattern enforced on all groups is dominated by the most numerous group of white Americans. However, we do see that Hispanic women experience a (insignificantly) lower fluidity level than other American women.

Because the model for the subgroups and, in fact, the overall OD association does not differ significantly between ancestry groups, we continue with the analysis of social fluidity among all Americans, but come back to race differences once cohort trends in fluidity are discussed. Table 54 displays the parameter estimates obtained from the social fluidity model fitted to American men's and women's mobility data. Almost all parameters are as expected. The three inheritance effects are positive and relatively large. Like in Germany, we find that the uniform immobility propensity is relatively weak among women but strong among men (IN1). The immobility propensity is weakened by gender barriers preventing women from following in their father's footsteps. The additional immobility propensity in the highest and in independent classes (IN2) is again pronounced and stronger than the uniform level of inheritance. Finally, the propensity for lateral mobility between professionals and managerial classes is again highly significant. Before the hierarchy effects are analyzed in detail, it can be confirmed that parameters for the gender effect (GE1), the positive affinity (AF1), social distance (AF2), as well as the country-specific affinity (CE1) and disaffinity (CE2) are all moderately strong and point in the expected directions.

Table 54: Parameter estimates of mobility channels and barriers

	IN1	IN2	IN3	HI1	HI2	HI3	HI4	HI5	HI6	AF1	AF2	CE1	CE2	GE1
Men	0.33	0.74	0.31	-0.02	-0.11	-0.45	-0.51	-0.20	0.06	0.37	-0.19	0.25	-0.33	
Women	0.01	0.59	0.23	-0.10	-0.17	-0.36	-0.50	-0.21	-0.04	0.36	-0.19	0.21	-0.20	-0.32

Note: Social fluidity parameters are calculated under models 2 in Table 53.

Hierarchy effects, finally, closely match the theoretically expected pattern in all but one case. Within- (HI1, HI3) and between-segmental vertical barriers (HI2, HI4) net of other barriers, are as expected negative. However, general hierarchical barriers within segments (HI1) are remarkably weak in the U.S. to the extent that they do not differ significantly from the neutral fluidity level among men. Between-segment general barriers (HI2) are nevertheless relatively strong, demonstrating that hierarchical mobility is less likely across segments, i.e. between different work-logics. This claim is further substantiated by parameters representing long-range mobility propensities between the highest and lowest classes within (HI3) and between segments (HI4). Both parameters indicate strong mobility barriers between the highest and lowest positions. In quantitative terms, long-range between-segment barriers are 22% stronger among men and 27% stronger among women than within-segment barriers. Differences in working class barriers between the industrial and post-industrial segments further underline the horizontal differences. Mobility propensities between the manual working classes (HI5) and all higher classes are substantially lower than between the service working classes (HI6) and the middle classes. In fact, little or no additional barriers net of other hierarchical penalties lower American men's or women's mobility propensities between the service working classes and higher classes. Thus, we find in both countries that the mobility propensity between all higher classes and the manual working classes, but not the service working classes (net of other mobility barriers), is especially low, confirming the existence of a special penalty associated with the manual classes as such.

Arguably, this effect might be driven by the composition of the manual working classes. As was shown before (Ch. 7.1), ethnic and racial minorities and immigrants frequently populate the manual working classes, and in particular the unskilled manual working classes, in both countries. The lower intergenerational association out of and into these classes might thus result from barriers which are not primarily class-specific by nature, but rather result from the intersection of class and race or ethnicity, limiting upward and downward mobility propensities. Comparing the social fluidity parameters of whites, African Americans and Hispanics, however, does not confirm this conclusion (not shown). Manual working class barriers exist among all subgroups and are always larger than among the service working classes. However, the latter barriers are only insignificant among whites. Among all other groups, mobility barriers around the service working classes significantly lower mobility propensities. Hence, intergenerational mobility between service class locations and higher classes is only indifferent from the neutral fluidity level among white Americans.

Table 55 reports the cell parameters which equal the exponentiated sum of effects describing each origin-destination association. Like in Germany, the highest origin-destination associations are found on the diagonal, between the independent, highest and lowest classes, and in one cell pertaining to horizontal mobility. Due to the gendered class attainment, cell parameters are usually higher among men than among women. Reproduction is highest in those diagonal cells where both inheritance effects (IN1 and IN2) come into play. The reproduction propensity of professionals [5,5], for instance, is around 3.7 times higher among men and 1.6 times higher among women than the neutral fluidity level pertaining to cells having a cell parameter of one. The lateral mobility association between managerial and professional classes [1,5; 5,1] is higher among women (1.3) and of equal strength (1.4) among men as compared to the immobility in classes in which only IN1 works (1.1 and 1.4). Thus, the highest classes not only have a higher reproduction propensity than other classes, but realize status reproduction more frequently through lateral mobility. Similarly, the high propensities from managerial and professional origins to independent destinations [1,9; 5,9] but not vice versa are particularly strong among women and men (both 1.4), driven by the positive affinity (AF1) indicating that self-employment is also a frequently employed strategy of intergenerational transmission.

Table 55: Cell parameters for men (upper value) and women (lower)

	M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB/FAR
M&A	2.10	0.98	0.80	0.51	1.36	1.28	0.95	0.57	1.44
	1.41	0.91	0.74	0.63	1.26	0.82	0.81	0.49	1.43
C&O	0.98	1.38	0.82	0.66	0.89	0.89	1.06	0.95	1.00
	0.91	1.07	0.81	0.61	0.84	0.84	0.96	0.81	1.00
SMW	0.80	0.82	1.38	0.98	0.73	0.73	1.00	0.89	1.00
	0.74	0.81	1.07	0.91	0.69	0.69	1.00	0.84	1.00
UMW	0.51	0.80	0.98	1.38	0.44	0.44	0.89	1.00	1.00
	0.51	0.74	0.91	1.07	0.42	0.42	0.84	1.00	1.00
PFS	1.36	0.89	0.73	0.32	3.73	1.44	1.04	0.66	1.44
	1.26	0.84	0.69	0.30	1.59	1.43	0.87	0.61	1.43
SPF	1.00	0.65	0.60	0.44	1.44	1.38	0.75	0.66	1.00
	1.00	0.62	0.57	0.42	1.43	1.07	0.64	0.61	1.00
SSW	0.95	1.06	1.00	0.74	1.04	1.04	1.38	0.98	1.28
	0.81	0.96	1.00	0.70	0.87	0.87	1.07	0.91	0.82
USW	0.57	1.21	0.89	1.00	0.66	0.66	0.98	1.38	1.06
	0.49	0.67	0.84	1.00	0.61	0.61	0.91	1.07	0.68
PeB/FAR	0.82	1.00	1.44	1.44	0.82	0.72	1.00	1.28	2.91
	0.83	1.00	1.43	1.43	0.83	0.73	1.00	0.82	1.94

Note: Figures equal the exponentiated sum of effect parameters active in each cell obtained from Table 54.

Two other horizontal associations are of special interest because they inform us about the rank-order of the classes. Much like in Germany, the lateral mobility association between clerical origins and semi-professional [2,6] destinations is considerably lower, accounting for only 89% of the neutral fluidity level among men and 84% among women. The association between semi-professional origins and clerical destinations [6,2] is even lower, accounting for 65% and 62%, respectively. While this outcome results from fitting the between-segment HI2 effect and in the case of semi-professional origins, the country-specific distance parameter CE2, it is obvious that the clerical class very much resembles the skilled working classes, at least regarding mobility propensities. Finally, we observe a high propensity for mobility between professional and semi-professional classes [5,6; 6,5], accounting for 1.4 times the neutral fluidity level among men and women which is more than simple inheritance. Arguably, it is exactly that channel which Erikson and Goldthorpe tried to map with their country-specific AFX effect (1992, p. 319).

Furthermore, the association between high and low classes is particularly low compared to the neutral fluidity level due the various barriers that were imposed. Again, the lowest mobility propensities are in cells pertaining to the mobility between professionals and unskilled manual workers. Upward mobility propensities [4,5] account for only 44% of men's and 42% of women's neutral fluidity level, whereas downward mobility [5,4] is even less likely with only 32% and 30% of the neutral fluidity association. The difference between both directions is related to the CE2 effect, which on top of the various hierarchy effects of HI2, HI4 and HI5, reduces the relative downward mobility risks.

To study the relative magnitude of segmental differences, Table 56 contrasts the relative mobility propensity of industrial origins with that of post-industrial origins for each destination class. Negative values indicate that the relative mobility propensity is higher for the offspring born in the respective post-industrial classes as compared to offspring originating in vertically equal industrial classes. The lower the figure, the darker the respective cell is shaded. Again, mobility propensities differ strongly by segment. The generally larger negative values among cell combinations pertaining to the post-industrial classes on the right indicate that men and women from industrial origins are less likely to enter post-industrial destinations as compared to individuals from post-industrial origins. A noticeable exception is the contrast of the clerical and semi-professional classes. Due to the hierarchy boundaries imposed on rank-and-file office workers but not on semi-professionals, the former are more likely to enter lower industrial and post-industrial working classes than the latter. While clerical origins are more associated with all working class destinations than semi-professionals, service working class origins are more associated with clerical destinations than manual working classes. The respective differences among men and partially among women are negative, indicating higher mobility propensities for post-industrial than industrial origins.

Table 56: Differences between cell parameters between segments

Men	M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW
M&A vs. PFS	0.74	0.09	0.07	0.19	-2.37	-0.16	-0.09	-0.09
C&O vs. SPF	-0.02	0.74	0.21	0.22	-0.55	-0.49	0.31	0.28
SMW vs. SSW	-0.15	-0.24	0.38	0.24	-0.31	-0.31	-0.38	-0.09
UMW vs. USW	-0.06	-0.41	0.09	0.38	-0.22	-0.22	-0.09	-0.38
Women	**M&A**	**C&O**	**SMW**	**UMW**	**PFS**	**SPF**	**SSW**	**USW**
M&A vs. PFS	0.15	0.06	0.05	0.33	-0.33	-0.60	-0.06	-0.12
C&O vs. SPF	-0.09	0.46	0.25	0.19	-0.58	-0.23	0.32	0.20
SMW vs. SSW	-0.07	-0.15	0.07	0.21	-0.19	-0.19	-0.07	-0.06
UMW vs. USW	0.02	0.07	0.06	0.07	-0.19	-0.19	-0.06	-0.07

Note: Cell values are the difference of exponentiated cell parameters of industrial and post-industrial origin classes taken from Table 55. Negative figures indicate lower relative fluidity in the respective industrial class, whereas positive figures indicate a lower mobility propensity for the offspring of post-industrial classes.

Overall, mobility propensities within the working class segments are higher than between them. Individuals from skilled manual origins are more likely to enter unskilled manual positions (men: .24 and women: .21) but less likely to attain unskilled service positions (-.09 and - .06) compared to the offspring of skilled service workers. The same is true for short-range upward mobility. The offspring of unskilled manual workers are more likely to attain skilled manual work (.09 and .06) than unskilled service positions (-.09 and -.06). Particular significant is the sectoral difference with regards to upward mobility chances into the expanding post-industrial high classes. Individuals raised in skilled manual households are less likely to enter either the (semi-)professional classes (both -.31 and -.19) compared to men and women originating in the skilled service class. While attenuated, this horizontal mobility propensity difference is also pronounced between individuals from the lowest manual origins (both -.22 and -.19) relative to men and women with unskilled service backgrounds.

Much like in Germany, the fluidity pattern of U.S. Americans is on average characterized by vertical as well as segmental class barriers that limit the association between different origin and destination classes. While this is a strong indicator for differences in mobility propensities between industrial and post-industrial classes, the next section will provide a global statistical test to show that the intergenerational association of origins and destinations is not solely addressable with the vertical EGP differentiation.

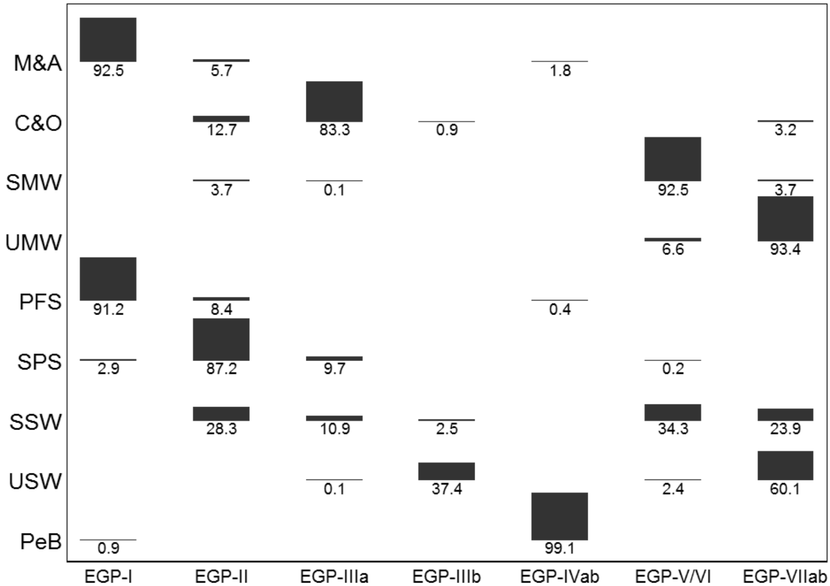
12.2 Comparing the IPICS and EGP classes directly: the American case

The test is performed using the current class of 30- to 64-year-old respondents from all GSS surveys from 1972 through 2012. The coding of occupational classification codes into EGP was performed employing routines from earlier research (Hertel & Groh-Samberg, 2014; Pfeffer & Hertel, 2015) which were based on the operationalization process developed by Morgan and his co-authors (Morgan & McKerrow, 2004; Morgan & Tang, 2007).[71] The EGP scheme is used in its eight-class version differentiating the higher service class (EGP I), the lower service class (II), higher grade routine non-manual (IIIa), lower grade routine non-manual (IIIb), the petty bourgeoisie (IVa+b), farmers (IVc), lower grade technicians and skilled manual workers (V+VI) and unskilled manual and agricultural workers (VIIa+b). The IPICS classes are operationalized in its 10-class version and distinguishes between farmers and the petty bourgeois.

Figure 39 graphically displays the composition of IPICS classes with regard to its constitutive EGP elements. Compared to the respective figure for Germany (Figure 35), we observe less heterogeneity of IPICS classes in terms of EGP classes. This difference results from the German operationalization of the EGP scheme, resorting to nationally-specific information about the occupational position (*Stellung im Beruf*) in addition to occupational codes and employment status to assign classes (Trometer, 1993; Brauns et al., 2000). In contrast, the operationalization of the IPICS classes is confined to occupational codes and class of worker information in order to facilitate cross-country comparisons. Because of the similarity of the sources, the American versions of the EGP and IPICS classes show a greater overlap than the German version. Nevertheless, we find once more the characteristic differences between both schemes. Both highest classes, managers and administrators and professionals are populated by high service class members. At the same time, unskilled service workers are primarily low-grade routine non-manuals and (in EGP terminology) unskilled manual workers, whereas skilled service workers are predominantly coded as skilled manual workers, low service class and unskilled service workers.

[71] The tedious work of operationalizing a class scheme would hardly have been possible without the assistance of the tenacious Adrian Kussin, then student assistant at the Chair for “Social Stratification and the Welfare State” of Prof. Dr. Olaf Groh-Samberg at the University of Bremen. I am greatly indebted to Adrian’s unwavering engagement with which he checked thousands of occupational assignments and, by challenging my coding decisions, forced me to repeatedly overhaul the assignment protocol.

Figure 39: Distribution of IPICS classes across EGP classes, U.S.



Note: GSS 1972-2012. N=20,284. For EGP abbreviations see Figure 8. EGP codes are taken from (Hertel & Groh-Samberg, 2014; Pfeffer & Hertel, 2015).

In order to show the benefit of the IPICS classes statistically, the same test is employed as was previously for Germany. Again, two simple models are compared. Model 1 includes all three-way interactions, all constitutive two-way interactions, and one-way margins of origins and destinations coded in EGP and IPICS except one two-level (λ^{OD}_{IPICS}) and two three-level interactions parameters that pertain to the association of IPICS origins and destinations ($\lambda^{O}_{EGP} * \lambda^{OD}_{IPICS}$ and $\lambda^{D}_{EGP} * \lambda^{OD}_{IPICS}$). While model 1 constitutes a suitable model of independence, model 2 adds the two-level interaction between IPICS origins and destinations.

Table 57: Comparing EGP and IPICS, United States

	M	Parameters	df	G^2	rG^2	α	BIC	N
Men	1	O_{IPICS}:D_{EGP}:O_{EGP} + D_{IPICS}:D_{EGP}:O_{EGP}	5184	957,600.5	NA	NA	909,542.3	10,620
	2	1 + O_{IPICS}:D_{IPICS}	5103	951,989.6	0.6%	0.0000	904,682.3	10,620
Wom	1	O_{IPICS}:D_{EGP}:O_{EGP} + D_{IPICS}:D_{EGP}:O_{EGP}	5184	773,336.7	NA	NA	725,767.5	9,664
	2	1 + O_{IPICS}:D_{IPICS}	5103	769,584.5	0.5%	0.0000	722,758.5	9,664

Note: GSS 1972-2012. Subscript indicates which class scheme's margin is fitted. All constitutive lower-level interactions and margins are fitted.

Table 57 displays the results from fitting both models. Like in Germany, neither of the models fits well due to the structural zeros. Nevertheless, it is obvious that the IPICS classes are required in addition to the EGP to explain the association of the horizontally differentiated origins and destinations. In other words, model 2 significantly improves model fit given the use of an additional 81 degrees of freedom among both men ($G^2{}_{M1-M2} = 5610.9, d.f._{M1-M2} = 81, \alpha = 0.000$) and women ($G^2{}_{M1-M2} = 3752.2, d.f._{M1-M2} = 81, \alpha = 0.000$). This modeling experience substantiates the previously shown substantive differences between post-industrial and industrial class segments. While this test does not prove any superiority of the IPICS classes, it establishes that the OD association is not satisfactorily describable in mostly vertical, i.e. EGP, terms once we allow for a horizontal differentiation. Having analyzed the fluidity patterns and demonstrated the significance of the used scheme, the following section is dedicated to the study of change of social fluidity in the United States.

12.3 Changing social fluidity across cohorts

The question of whether the United States became a more open or closed society over the last century has been not only an ideological debate, but also an empirical issue (Ferrie, 2005). While most of the numerous empirical contributions to that debate described the association of fathers' and sons' status for whites, early contributions also focused on minorities to study whether all subgroups equally participate in the "American Dream". Before the analysis of the compiled dataset begins, we briefly review findings from these studies on the intergenerational association of status and class in the U.S.

Half a century ago, Blau and Duncan's *America Occupational Structure* (1967) set the stage for more complex mobility studies. Based on the 1962 Occupational Change in a Generation Survey (OCG-I), they empirically established that fathers' occupations had a direct effect on sons' occupational attainment and an indirect effect mediated through educational attainment. Nearly two decades later, Hout (1984b) attributed most of the observed mobility barriers in mobility tables to differences in status, work place autonomy and educational training which limited mobility propensities between classes and strengthened the intergenerational association within classes. However, Blau and Duncan also showed that African Americans faced particularly high disadvantages for occupational mobility independent of socio-economic origins (Duncan, 1969). These findings were further substantiated and corroborated by the follow-up study by Featherman and Hauser (1978). Comparing the OCG-I data from 1962 with their OCG-II data from 1973, their results indicated that in the long phase of economic growth following World War II, the association between socio-economic background, as well as educational and occupational attainment, declined (Featherman & Hauser, 1978). Furthermore, intergenerational mobility differences between African Americans and whites declined over the decade because the association between fathers' and their sons' socio-economic status increased among African Americans but decreased among whites (Featherman & Hauser, 1976). Nevertheless, strong racial differences persisted. Hout (1984a) corroborated this finding showing that barriers faced by African Americans until the 1960s, in which the civil rights movement finally could claim its success, limited mobility opportunities for African-American men independent of their origin classes. Affirmative action and the outlawing of racial segregation and employment discrimination first in the public sector and then in the private sector allowed African-American families to pass down their class origins (Hout, 2006a). While the intergenerational occupational associations remained different between subgroups, it overall declined for most of the 1960s and 1970s until the mid-1980s, presumably due to the expansion of tertiary education and the welfare state expansion following the War on Poverty (Hout, 1988; DiPrete & Grusky, 1990).

While the period of the 1960s until the mid-1980s was characterized by increasing fluidity, the decrease in the intergenerational association began to slow down in the mid-1980s (DiPrete & Grusky, 1990; Hout, 1996). The dismantling of the welfare state under Reagan, the retrenchment of employment regulations and their effect on personnel policies dampened any expectations of an emergence of universalism or meritocracy (Pierson, 1994). More recent research also showed that the increase in inequality might have an effect on the intergenerational association in the highest classes, arguably due to the increasingly restricted access to costly higher education (Mitnik et al., 2013). While educational attainment has long been seen as offsetting origin disadvantages once educational attainment was achieved against the odds (Mare, 1979, 1980; Hout, 1988), the increase of the highest educational attainment may have decreased fluidity due to the higher origin-destination association found among postgraduates (Torche, 2011). The more recent cohort analyses of intergenerational class mobility in the U.S. find results that corroborate the idea of lower social fluidity. Beller (2009), for example, demonstrated that the association between parental origins and children's class became stronger in the cohorts born between 1955 and 1964 and 1965 and 1979 as compared to men and women born between 1945 and 1954. Using slightly different birth cohorts, Pfeffer and Hertel (2015) found that, relative to men born before 1921, social fluidity linearly increased among men born between 1922 and 1969, but moderately decreased among those men born between 1970 and 1982. Thus, mobility trends in the United States may be summarized as follows. The association of origins and destinations declined overall in the second half of the century until the 1970s. Over the following decades, however, social fluidity decreased and the U.S. class structure became less permeable.[72]

While most of the earlier studies used either the association of father's and individual's status or some arbitrary occupational classification, more recent studies of social mobility addressed the question of trends in fluidity based on the EGP scheme described in detail above (Ch. 3.3). The first question, therefore, is whether the IPICS classes find a similar development of social fluidity across time and whether this can be explained in terms of the social fluidity model developed earlier and applied to the German and (cohort invariant) United States data. Table 58 summarizes six models for the description of social fluidity among American men and women along the usual goodness-of-fit measures (explained in detail in Ch. 15.4). Model 1 is the model of independence assuming that there is no association between origins and destinations once all one-way margins and two-way interactions between origins or destinations and cohorts are fitted. Model 2 assumes constant association between origin and destination classes across cohorts. Model 3 replaces the 64 origin destination parameters with the 13 or 14 social fluidity parameters, but also assumes constancy in these parameters across cohorts. Models 4 and 5, in contrast, allow the origin-destination association to vary across cohorts. While model 4 assumes a common pattern which heterogeneously varies

[72] Whether or not the recent increase in social fluidity observed by so many researchers really took place was recently questioned by Long and Ferrie who, based on several of the datasets used here and linked census data, found that social fluidity declined in the United States since the latter half of the 19th century (Long & Ferrie, 2013). While their findings have been contested primarily on methodological grounds (Xie & Killewald, 2013), they may also miss the upturn in recent fluidity levels because the difference between the single periods is too small relative to the reference period in the middle of the 19th century. Moreover, it is questionable whether the assumption of a homogenous mobility pattern holds for such a long period and, if not, what that implies for the estimated change parameters.

across cohorts, model 5 forces change across cohorts to be linear. Model 6, finally, fits the social fluidity parameters but allows them to vary heterogeneously across cohorts. Again, models are calculated for men (upper panel) and women (lower panel) separately.

Table 58: Modeling of cohort change in social fluidity in the U.S.

M	*Parameters*	*df*	*G²*	*rG²*	*P-value*	*Δ*	*BIC*	*AIC*	*lin. UD*
					Men				
1	C,O,D,CO,CD	448	8826.5	n.a.	0.0000	13.8%	3,846.4	12,490.1	
2	1 + OD	384	588.1	93.3%	0.0000	3.2%	-3,680.5	4,379.8	
3	1 + SF	435	955.2	89.2%	0.0000	4.3%	-3,880.3	4,644.8	
4	2 + φ_COD	378	523.8	94.1%	0.0000	3.1%	-3,678.1	4,327.5	
5	2 + $lin\varphi_C$OD	383	534.7	93.9%	0.0000	3.1%	-3,722.8	4,328.4	-0.046
6	3 + φ_CSF	357	761.5	91.4%	0.0000	3.8%	-3,207.0	4,603.2	
					Women				
1	C,O,D,CO,CD	448	3553.7	n.a.	0.0000	10.4%	-1,232.2	6,861.2	
2	1 + OD	384	492.3	86.1%	0.0002	3.5%	-3,609.9	3,927.8	
3	1 + SF	434	752.4	78.8%	0.0000	4.6%	-3,883.9	4,087.9	
4	2 + φ_COD	378	480.7	86.5%	0.0003	3.4%	-3,557.4	3,928.2	
5	2 + $lin\varphi_C$OD	383	489.8	86.2%	0.0002	3.5%	-3,601.7	3,927.3	-0.020
6	3 + φ_CSF	350	636.4	82.1%	0.0000	4.3%	-3,102.6	4,129.9	

UniDiff parameters for cohorts obtained under model 4

Cohorts								
	From:	1915	1925	1935	1945	1955	1965	1975
	To:	1924	1934	1944	1954	1964	1974	1984
Men		0.000	-0.114	-0.147	-0.257	-0.240	-0.240	-0.348
Women		0.000	-0.131	-0.150	-0.242	-0.219	-0.108	-0.254

Note: Compiled dataset (refer to Ch. 6 for more information); N=67,251 men and 43,596 women. Notation: C, O, D, CO… = Fitting of the respective margins; INX: $\varphi_C\theta_{INX}$, $lin\varphi_C$: UniDiff parameter constrained to be linear, i.e. $lin\varphi_C = (1 + \varphi_C)\theta_{OD}$.

We find a similar pattern of social fluidity as in Germany, although we find that none of the models calculated for men fit the data given the likelihood ratio test $(p - value < 0.0001)$. The independence model (1) does fit neither for men nor for women. Once we fit the constant association model (2), we find that deviance is reduced by 93.3% among men and 86.1% among women and only 3.2% and 3.5% of cases remain erroneously classified. Though highly superior to the independence model, the model of constant association fits only for women but not for men according to the likelihood ratio test. Due to the large sample sizes, however, this result is not too authoritative in particular because the negative BIC value implies a superior fit given the degrees of freedom preserved compared to the saturated model. The social fluidity model (3) with constant effects fares significantly worse despite its greater parsimony (Men: $G^2_{M3-M2} = 367.1, d.f._{M3-M2} = 51, \alpha = 0.000$; $Women$: $G^2_{M3-M2} = 260.1, d.f._{M3-M2} = 50, \alpha = 0.000$). According to BIC (but not AIC), however, the social fluidity model is the best fitting model relative to its parsimony for men and women.

Among men, both model 4 and model 5 significantly improve model fit relative to the constant association model (2) ($G^2_{M2-M4} = 64.3, d.f._{M2-M4} = 7, \alpha = 0.000$; $G^2_{M2-M5} = 53.4, d.f._{M3-M2} = 1, \alpha = 0.000$). Due to its higher parsimony, the linear UniDiff model (5) provides the best fit for the cohort pattern in social fluidity of American men. According to this model, fluidity increased among men on average by roughly 4.5% per cohort. In contrast, neither the cohort variant UniDiff model (4) nor the linear UniDiff model (5) significantly improves fit relative to the constant association model (2) among American women unless we allow for a significance level of 10% ($G^2_{M2-M4} = 11.6, d.f._{M2-M4} = 7, \alpha = 0.0715$; $G^2_{M2-M5} = 2.5, d.f._{M2-M5} = 1, \alpha = 0.1139$). Although findings indicate stability of fluidity among American women, the UniDiff parameters of model 4 are still telling of the evolution of mobility chances across cohorts.

Figure 40 displays the cohort-specific UniDiff multipliers. Relative to the first cohort, men and women experienced a linear increase of social fluidity until the fourth cohort ($\varphi_{C=4}$ equals -0.257 for men and -0.242 for women). Over the next two cohorts, social fluidity decreased among women but remained mostly stable among men ($\varphi_{C=6}$ equals -0.240 and -0.108). In the youngest cohort, fluidity again increased among both genders ($\varphi_{C=7}$ equals -0.348 and -0.254). Thus, the uptick in fluidity in women born between 1955 and 1974 is responsible for the UniDiff models unsatisfactory fit. The initial increase among men and women may in part be triggered by the expansion of American universities in the 1950s and 1960s and, at least for men, through educational opportunities provided through the G.I. Bill for veterans from WWII and the Korean War (Card & Lemieux, 2001; Bound & Turner, 2002; Roksa et al., 2007). While educational expansion, specifically the change in the composition of individuals with higher degrees, has increased fluidity across cohorts through loosening the firm grip of social origins on class destinations (Hout, 1988; Torche, 2011; Pfeffer & Hertel, 2015), economic prosperity and, for the well-educated, skill-biased technological change might have influenced fluidity in the post-war years. The long economic boom period following World War II, the expansion of the welfare state accompanying the War on Poverty and higher degrees of regulation arguably positively affected fluidity in the birth cohorts that entered the labor market in the 1960s and 1970s (Hout, 1988; DiPrete & Grusky, 1990).

Figure 40: UD parameters for change in social fluidity, United States

Note: Compiled dataset (refer to Ch. 6 for more information). UniDiff parameters are obtained under models 4 in Table 58.

The following retrenchment of social policies in the 1980s, however, and the increase in social inequality resulted in stagnant social fluidity among men ($\varphi_{C=5}$ and $\varphi_{C=6}$ both equaled -0.240) who entered the labor market in this phase. The decrease of social fluidity among women born between the mid-1960s and mid-1970s ($\varphi_{C=5}$ equaled -0.219 and $\varphi_{C=6}$ equaled -0.108) who came of age and proceeded in their careers in the 1990s and 2000s might well result from three different but reinforcing trends. First, the retrenchment of welfare state measures and educational provisions that benefited especially women from lower backgrounds might have decreased fluidity from below. Second, at the same time, women from higher backgrounds became increasingly likely to enter and succeed in traditionally higher positions due to their continuously increasing higher educational attainment. Hence, fluidity decreased to the extent that traditional barriers for female mobility were reduced. Third, men (hence, fathers) increasingly entered the medium and higher post-industrial classes which might have further increased immobility chances among women. Thus, the decrease of fluidity might result from the greater ability of women to reproduce their father's status through educational attainment, lower gender-based labor market discrimination, the growing inability to overcome disadvantaged backgrounds, and the influx of men in the growing gender-mixed occupations. However, the decreasing fluidity did not prevail. In the last cohort, the UniDiff parameter decreased among both men and women and reached the highest fluidity level across all cohorts. Before we continue to study the change in more detail by employing the social fluidity model, we back our results by testing to what extent the change in the racial composition might have affected the fluidity pattern of Americans.

Differences in social fluidity trends between African American and white American men

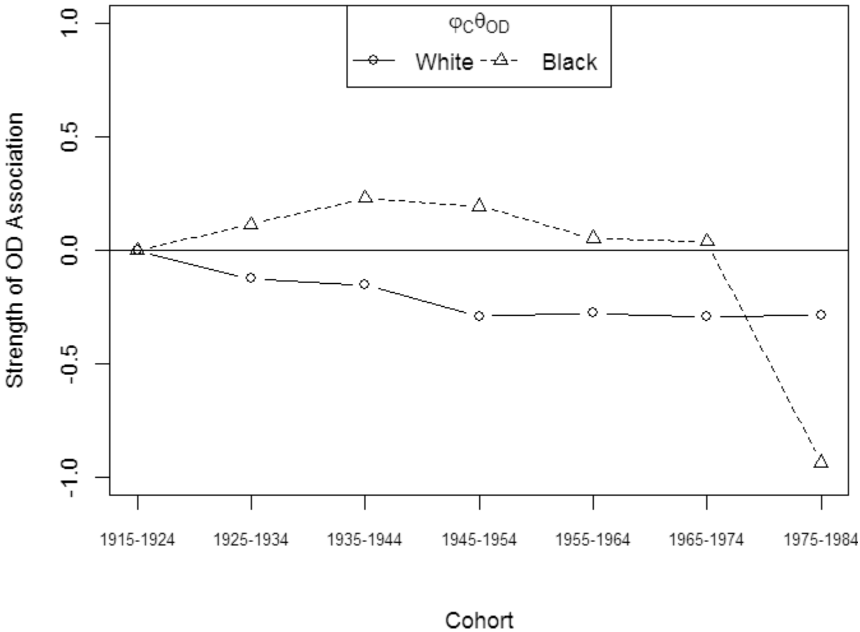
A next step is therefore to analyze the cohort trend of social fluidity between different racial groups. Because of low frequencies in older cohorts, Hispanics had to be excluded from the following analyses. To establish differences between African-Americans' and white Americans' fluidity levels, a common Unidiff model is estimated. In order to compare both groups, a similar pattern of social fluidity is forced on both groups and the respective first cohort is fixed as reference category.[73] The respective UniDiff parameters are displayed for men in Figure 41 and for women in Figure 43. Among men, the fluidity pattern of whites is similar to that studied before for the whole population. However, no change is observable since the first post-war cohort (1945-1954) experienced the highest fluidity levels.

Among African Americans, however, the pattern of "perverse" fluidity described by Featherman and Hauser (1976; 1978) and Hout (1984a) is observable. After the end of legal segregation under the "Jim Crow" regime, cohorts born from the mid-1930s onwards experienced a significant decrease in fluidity as they were for the first time able to overcome racial barriers and their frequent confinement to the lowest classes independent of parental origins. Interestingly, the expansion of public employment might have triggered the decrease of fluidity, because well-educated African Americans were more likely to be employed in middle and high status positions in the public sector, which was more selective with regard to class origins than the private sector (Hout, 1984a). At the same time, the high degree of persistent segregation of African Americans, especially in the decades following World War II, might have further limited the mobility opportunities of lower class

[73] A similar design has been used by Müller and Pollak (2004) to compare UniDiff parameters across gender.

African Americans through underfunded local schools and diminishing employment alternatives in the growing African American ghettos (Massey & Denton, 1989; Massey, 1993; Wilson, 1997).

Figure 41: UD model for fluidity change by ancestry for men, US



Note: Based on data for African-American and white men only using the compiled dataset (refer to Ch. 6 for more information). Model statistics: $df = 819$, $G^2 = 1055.8, rG^2 = 92.0\%, P-value = 0.0000$ $\Delta = 4.0\%, BIC = -7{,}998.0, AIC = 7{,}026.0, N = 63{,}238$ $(Whites = 53{,}699; African\ Americans = 9{,}539)$.

Over the last decades, mass incarceration, political disenfranchisement and segregation might have further limited upward mobility chances of many African Americans, not only those that are crowded in the urban hyper-ghettos (Massey, 1993; Wilson, 1997; Massey, 2007b; Wacquant, 2008, 2009). While incarceration is more likely the lower the class position, differences between African Americans and white Americans exist throughout the social hierarchy (Pettit & Western, 2004). Incarceration not only seriously hinders individual occupational attainment but it may also affect the mobility chances of children growing up in disrupted families due to incarceration (Biblarz & Raftery, 1993; Western & Pettit, 2010).[74] Since the fifth cohort, the comparatively low fluidity level increases. Interestingly, the turning point is reached with the cohort entering the educational system in the 1970s, a period during which college attendance among African Americans, independent of parental education, decreased substantially (Hout, 2011, p. 178f.). This change might have contributed to the increase in fluidity because African-American men became less likely to achieve class reproduction. Finally, in the most recent cohort, fluidity increased strongly below the level of white men. As we have seen, this decrease is strong enough to drive fluidity in the whole American population onwards. Further sensitivity checks, however, demonstrate that if we pool the last two cohorts together, this effect vanishes and the fluidity among African Americans reaches a similar level to that of white men over the last two cohorts (ref to Figure A. 3).

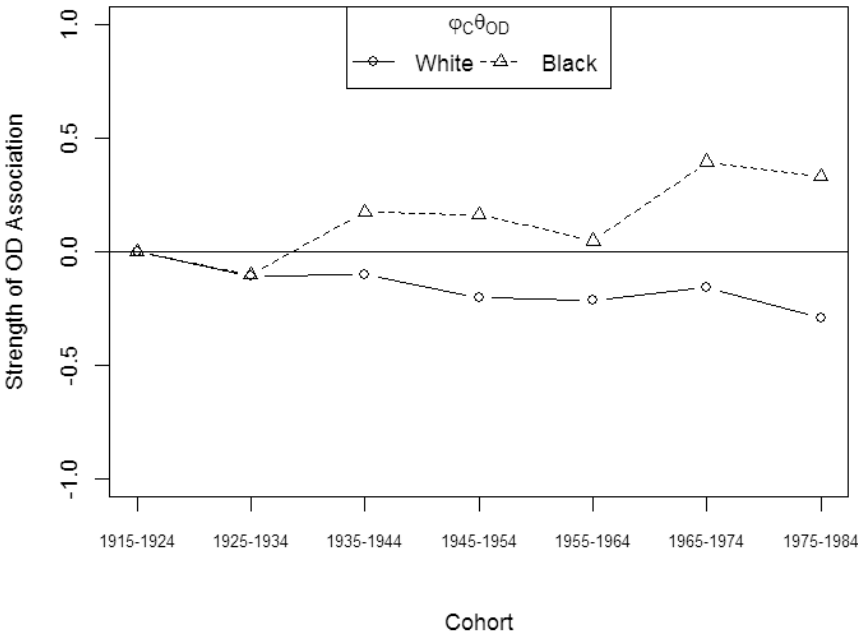
Racial differences in social fluidity trends among American women

With the exception of the cohort born between the mid-1950s and the mid-1960s, we observe among white women little more than the continuous decrease of fluidity (Figure 42). There are at least three remarkable phases: the increase in fluidity from the first to the second cohort, the increase in fluidity from the third to the fourth cohort, and the final increase among the youngest cohort. The particularly low fluidity in the first cohort might result from the disproportionately higher employment rates among low educated women before the 1940s (Goldin, 1991). Given that lower educated children are more likely to be born in low status households, women's lower educational attainment and gender barriers preventing women from entering higher occupational classes may have resulted in particularly low intergenerational fluidity among white women born before the mid-1920s (Goldin, 1990, 1994). Thus, relative increase of fluidity in the second and third cohorts relative to the first is mostly due to the low fluidity in the first cohort. The second increase among women born in the post-war decade (1945-1954) is likely to result directly from educational expansion positively affecting women's fluidity. Arguably, this cohort profited at first from the massive expansion of the educational system between the 1950s and late 1960s in which women's college

[74] One way to test this assumption would be to exploit state-to-state variation in incarceration and segregation in order to analyze to what extent a significant effect on social mobility, as well as the status attainment process, exists. If this uncorroborated pattern can be confirmed, African Americans would indeed face a new gender-biased "Jim Crow" also with regard to intergenerational mobility patterns (Alexander, 2010).

attainment grew most over the last century (Hout, 2011). The welfare state expansion in the U.S. following the New Deal and the growth of employment opportunities in the more selective public sector might have allowed better educated women from all backgrounds to enter increasingly middle and higher class positions in the health and education sector (Peters, 1985). Thus a mixture of higher educational attainment and higher occupational opportunities likely improved social fluidity of American white women born in the first decade after WWII. The final increase of mobility among women in the most recent cohort might result from the increasing job opportunities in female dominated semi-professionals.

Figure 42: UD model for fluidity change by ancestry for women, US



Note: Based on data for African-American and white women only using the compiled dataset (refer to Ch. 6 for more information). Model statistics: $df = 819$, $G^2 = 935.0, rG^2 = 85.9\%, P - value = 0.0029$ $\Delta = 4.5\%, BIC = -7{,}742.6, AIC = 6{,}293.5, N = 39{,}947$ ($Whites =$ 32,094; $African\ Americans =$ 7,853).

Social fluidity among African-American women, in contrast, decreased over most of the last century. The picture is similar to that of men with two exceptions. Fluidity decreased only in the third cohort and instead of declining continuously in the following cohorts, fluidity again decreased considerably in the fifth cohort. In line with the results for men, this might be interpreted in terms of increasing possibilities for African-American parents to hand down advantages (and disadvantages) of their own class position to their daughters. Especially because the working classes are strongly separated between men and women, this effect is likely to represent the increasing chances of African-American women to reach the less gender segregated higher post-industrial class positions formerly reserved to men. The fluidity decrease found among all American women in the next to last cohort is nearly completely due to decreasing fluidity among African Americans born between 1965 and 1974. This effect remains strong even if we collapse the last two cohorts to account for low cell frequencies (Figure A. 4). Again, the most likely interpretation is a polarization of mobility chances. While the earlier increase might be explained by a catch-up in immobility, the more recent effect is unlikely to represent such a pattern because it does not exist (or is at least very weak) among white American women. Thus, it is more likely that the decrease in fluidity in the last cohorts resulted from declining upward mobility chances following the declining post-secondary educational attainment of African-American women and the increasing educational inequality from the 1970s onwards (Bailey & Dynarski, 2011; Hout, 2011). Without more evidence to back these claims, however, the next section will proceed with the analysis of change in fluidity regimes. While there are not enough African Americans in the sample to estimate the change in the social fluidity parameters stably for African Americans, the social fluidity model will be studied in the following for all Americans and white Americans, in order to infer from the characteristic differences about the change in fluidity of non-white Americans.

Potential causes for the change in social fluidity

Following the same modeling strategy as for Germany, 13 linear UniDiff models for men and 14 models for women are estimated that allow each parameter of the social fluidity model to vary across cohorts while holding the other fluidity parameters constant (7-19) to find out which parameter's variation significantly improves fit. The first part of this section investigates the reasons for the decrease of social fluidity among American men, while the remainder of this chapter focuses on women. Initially, the change in each barrier is parsimoniously modeled as a linear process and then it is tested whether the more complex heterogeneous UniDiff model provides a better way to model change (results not shown). Model fit parameters in inform us about the usual model fit statistics and in the last three columns about the deviance reduction relative to model 3, assuming constant fluidity effects across cohorts (rG²), its statistical significance (α) and the linear UniDiff parameter ($l\varphi_C$).

All significant UniDiff parameters point towards greater social fluidity among (all) American men (Table 59). Accounting for cohort variation in all but four parameters – inheritance in the highest class locations and the propertied class (IN2), affinity (AF1) and disaffinity (AF2), as well as country-specific disaffinity (CE2) – results in a (at $\alpha = 0.05$) significant increase in model fit. However, substantial improvements in model fit ($rG2 \geq 1\%$) are only observable with regard to models 9, 16 and 17. Cohort variation in IN2 additionally improves model fit significantly relative to the linear trend and constant social fluidity model (3). Interestingly, there is no evidence for declining hierarchy effects among American men.

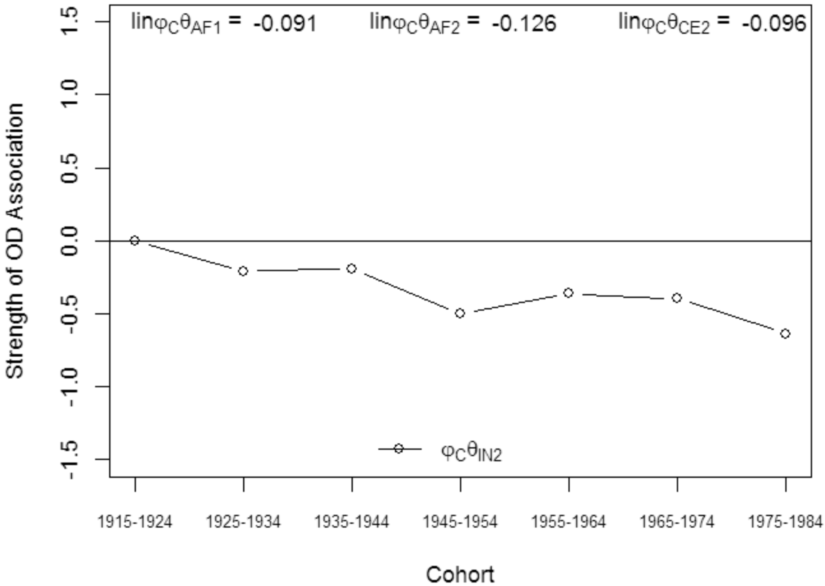
Table 59: Changing mobility barriers and channels, American men

M	Parameters	df	G²	rG²	P-value	Δ	BIC	AIC	N	Vs. M3		$l\varphi_C$
										rG²	α	*
7	434	951.7	89.2	0.0000	4.3	-3,872.7	4,643.4	67,251.0	0.4	0.063	-0.03	434
8	434	940.1	89.3	0.0000	4.3	-3,884.3	4,631.8	67,251.0	1.6	0.000	-0.05	434
9	434	955.2	89.2	0.0000	4.3	-3,869.2	4,646.8	67,251.0	0.0	0.972	0.00	434
10	434	953.3	89.2	0.0000	4.3	-3,871.1	4,644.9	67,251.0	0.2	0.169	-0.14	434
11	434	955.0	89.2	0.0000	4.3	-3,869.4	4,646.7	67,251.0	0.0	0.716	-0.02	434
12	434	954.0	89.2	0.0000	4.3	-3,870.4	4,645.7	67,251.0	0.1	0.283	-0.03	434
13	434	953.1	89.2	0.0000	4.3	-3,871.3	4,644.8	67,251.0	0.2	0.153	-0.03	434
14	434	953.8	89.2	0.0000	4.3	-3,870.6	4,645.4	67,251.0	0.1	0.240	-0.04	434
15	434	953.4	89.2	0.0000	4.3	-3,871.0	4,645.1	67,251.0	0.2	0.184	-0.13	434
16	434	935.5	89.4	0.0000	4.3	-3,888.9	4,627.2	67,251.0	2.1	0.000	-0.09	434
17	434	919.1	89.6	0.0000	4.3	-3,905.3	4,610.8	67,251.0	3.8	0.000	-0.16	434
18	434	952.9	89.2	0.0000	4.3	-3,871.5	4,644.5	67,251.0	0.2	0.131	-0.06	434
19	434	951.0	89.2	0.0000	4.3	-3,873.4	4,642.6	67,251.0	0.4	0.041	-0.06	434

Note: Reference model is Model 3 (top panel) from Table 58.

The resulting composite model 20 accounts for linear change in both affinity terms, in the country-specific social distance term, and for cohort variation of the reproduction in the highest classes and the independent classes. Figure 43 presents the UniDiff effects and, in the respective note, the goodness-of-fit statistics. While model 20 fits the data better than either of the other linear trend models in terms of the AIC, judging by BIC the increase in model fit is not making up for the loss of degrees of freedom. Comparing this model directly with model 3 (Table 58), however, yields a significant increase in model fit ($G^2_{M3-M20} = 91.4, d.f._{M2-M4} = 9, \alpha = 0.000$).

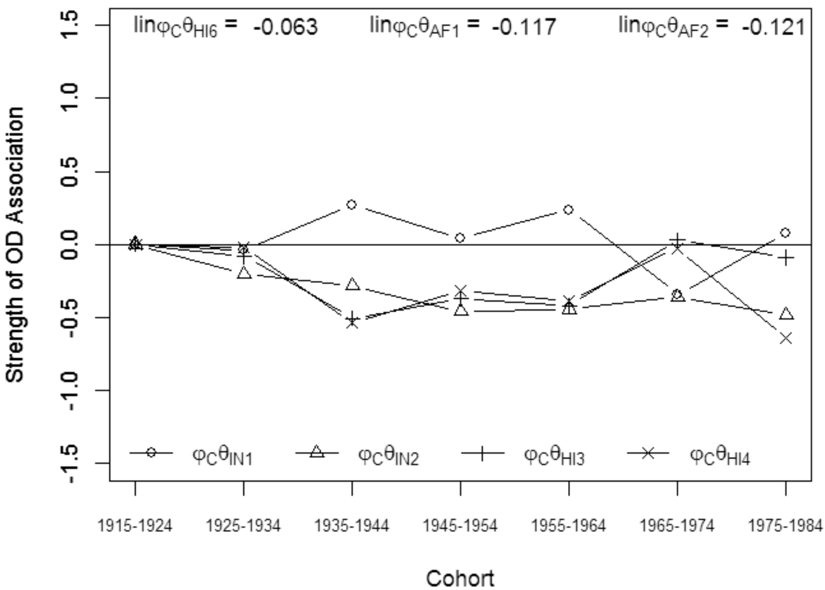
Figure 43: Best model 20 for changing fluidity in the U.S., men



Note: Model allows for uniform heterogeneous change over cohorts of IN2 and linear change of AF1, AF2 and CE2. Other fluidity parameters are held constant across cohorts. Model statistics: $df = 426$, $G^2 = 863.8, rG^2 = 90.2\%, P - value = 0.000$, $\Delta = 4.1\%, BIC = -3{,}871.7, AIC = 4{,}571.5, N = 67{,}251$.

Figure 43 shows clearly that the inheritance among managerial, professional and independent classes continuously decreased across the first four cohorts and the last cohort, whereas it remained relatively stable among American men born between 1955 and 1974, i.e. cohorts five and six. The linear decrease in the AF1 and AF2 effects is mainly due to the declining association between farm classes and employee classes in later cohorts, which itself results from the professionalization of agricultural production and the declining association of agricultural origins and industrial or post-industrial destinations. The decrease in the additional country-specific disaffinity CE2 is also likely to be driven by the declining association between independent origins and semi-professional destinations. However, by inspecting cell parameters of a saturated model it becomes evident that immobility in managerial classes declined especially in the two last cohorts. Thus, by and large, the increase in fluidity among American men is driven by two factors. First, the declining association between various employee classes and the petty bourgeoisie, in particular, farmers and, second, the declining inheritance effects among professional, managerial and the propertied classes net of lateral inheritance between the first two classes captured by the constant IN3 effect. At least in Germany, the former is clearly related to declining inequality in educational opportunities (Müller & Pollak, 2004) and in fact, results for the United States also confirm that the change in the educational composition might have triggered increasing social fluidity (Pfeffer & Hertel, 2015).

Figure 44: Best model 20 for changing fluidity in the U.S., white men



Note: Model allows for uniform heterogeneous change over cohorts of IN1, IN2, HI3 and HI4, and linear change of HI6, AF1, and AF2. Other parameters are held constant across cohorts. Model statistics: $df = 408$, $G^2 = 798.3$, $rG^2 = 88.3\%$, $P - value = 0.000$, $\Delta = 4.3\%$, $BIC = -3{,}645.3$, $AIC = 4{,}377.2$, $N = 53{,}699$.

For white American men only, fluidity change is similarly related to change in AF1, AF2 and IN2 (Figure 44). Additionally, however, immobility barriers between higher classes and the service classes (HI6) declined linearly across cohorts for white American men, but not for all men. Furthermore, white Americans experienced increasing fluidity in the third cohort because long-range mobility barriers within (HI3) and between-segments (HI4) were considerably (and significantly) reduced in the third cohort. While these effects are significant among white Americans, they do not substantially contribute to social fluidity in the whole sample. Arguably, the changes in the fluidity pattern among African Americans and Hispanics offset these effects even though white Americans are numerically dominant. One reason for this racial difference might be that many of the welfare programs in the first half of the 20th century, for instance, social security and minimum wages or educational inequality reducing programs like the G.I. Bill, were customized by the legislature to disproportionately benefit whites rather than the whole population (Katznelson, 2005). If these programs had an effect on the mobility propensities of children, they were exactly the cohorts of whites born between the mid-1930s and mid-1940s which would have benefitted most in terms of a reduction of long-range hierarchical barriers (HI3, HI4). Additionally, full employment in the post-war decades might have furnished the mobility opportunities which men from lower class origins needed to turn educational advancement in solid upward mobility. At the same time, social fluidity among African-American men decreased in the corresponding cohorts as parents were increasingly likely to bequest their social positions. If anything, thus, hierarchical barriers increased among African Americans due to the increasing potential for well-off African-American families to inherit their positions, in particular in the institutional ghettos of the northern urban areas where African-American professionals catered to the needs of African-American clients (Wilson, 1997). Both opposing trends might have canceled each other out, resulting in no change in the hierarchical barriers in the whole population.

Social fluidity trends among women

The models in the lower part of Table 58 powerfully demonstrate that social fluidity among America’s women hardly changed across cohorts. Consequently, none of the linear UniDiff models in Table 60 increasing model fit relative to the constant social fluidity model (3). While this was to be expected given the overall pattern among women, there are two effects that may help to understand why social fluidity did not significantly increase as suggested by comparing models 2 and

5 in Table 58. Both effects are significant only at a level of 10% and rather illustrative than substantial for the fluidity pattern among American women. The first parameter (IN2) assumes a linear trend in the particular inheritance effect and is freed in model 8. The second parameter (CE1) represents a linear trend in the country-specific affinities between various employee and independent classes, in the immobility association among professionals and the lateral mobility from managerial origins to semi-professional destinations and is freed in model 18. The comparison of linear and variant UniDiff models further attests that the CE1 and furthermore the affinity effect (AF1) are best modeled cohort-specifically, whereas the IN2 effect is primarily linear in nature.

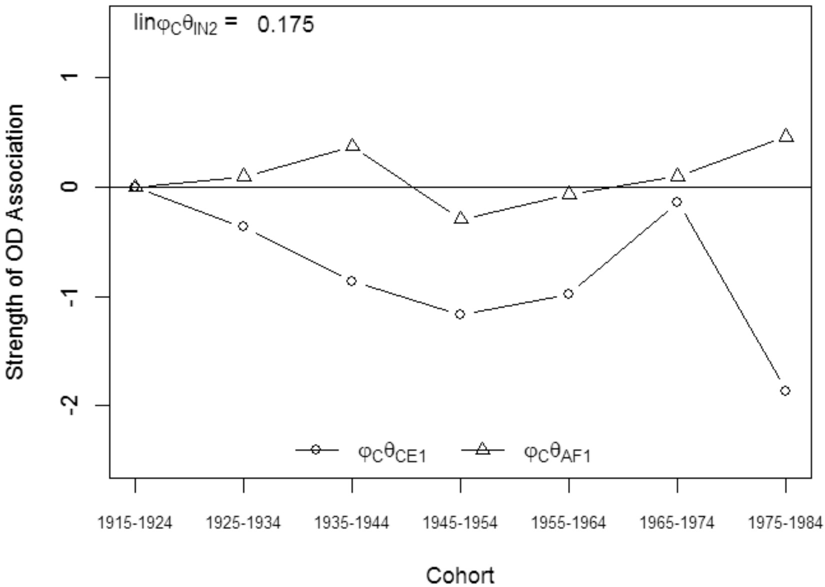
Table 60: Changing mobility barriers and channels, American women

M	Parameters	df	G^2	rG^2	P-value	Δ	BIC	AIC	N	Vs. M3 rG^2	Vs. M3 α	$l\varphi_C$*
7	$3+\varphi_C$IN1	433	683.6	77.7	0.0000	4.8	-3,863.9	3,913.9	36,403.0	0.0	0.9285	0.02
8	$3+\varphi_C$IN2	433	680.9	77.8	0.0000	4.8	-3,866.6	3,911.1	36,403.0	0.4	0.0944	0.09
9	$3+\varphi_C$IN3	433	683.7	77.7	0.0000	4.8	-3,863.8	3,913.9	36,403.0	0.0	0.9942	0.00
10	$3+\varphi_C$HI1	433	682.1	77.8	0.0000	4.8	-3,865.4	3,912.4	36,403.0	0.2	0.2110	-0.08
11	$3+\varphi_C$HI2	433	683.6	77.7	0.0000	4.8	-3,863.9	3,913.9	36,403.0	0.0	0.9124	-0.01
12	$3+\varphi_C$HI3	433	683.6	77.7	0.0000	4.8	-3,863.9	3,913.8	36,403.0	0.0	0.7587	0.02
13	$3+\varphi_C$HI4	433	682.8	77.7	0.0000	4.8	-3,864.7	3,913.0	36,403.0	0.1	0.3503	-0.03
14	$3+\varphi_C$HI5	433	681.8	77.8	0.0000	4.8	-3,865.7	3,912.0	36,403.0	0.3	0.1714	-0.06
15	$3+\varphi_C$HI6	433	683.6	77.7	0.0000	4.8	-3,863.9	3,913.8	36,403.0	0.0	0.7746	-0.14
16	$3+\varphi_C$AF1	433	683.6	77.7	0.0000	4.8	-3,863.9	3,913.9	36,403.0	0.0	0.9162	-0.01
17	$3+\varphi_C$AF2	433	683.6	77.7	0.0000	4.8	-3,863.9	3,913.9	36,403.0	0.0	0.8159	-0.03
18	$3+\varphi_C$CE1	433	680.4	77.8	0.0000	4.8	-3,867.1	3,910.6	36,403.0	0.5	0.0704	-0.09
19	$3+\varphi_C$CE2	433	683.6	77.7	0.0000	4.8	-3,863.9	3,913.9	36,403.0	0.0	0.9375	0.01
20	$3+\varphi_C$GE1	433	681.3	77.8	0.0000	4.8	-3,866.2	3,911.6	36,403.0	0.3	0.1267	-0.10

Note: Reference model 3 (top panel) is taken from Table 58. *linear parameters estimated under separate models. Fit statistics available from the author.

Figure 45 presents the UniDiff parameter estimates obtained by fitting model 21 to the data. It provides a significant though small improvement in fit over the constant social fluidity model 3 ($G^2_{M3-M21} = 41.2, d.f._{M2-M4} = 13, \alpha = 0.000$). The three effects drive fluidity differently. First, the increasing positive IN2 effect shows that women are increasingly able to remain across generations in the highest class positions and thus offsetting increasing fluidity. By studying the cohort specific UniDiff parameters (not shown), we further observe that high class inheritance grows particularly between the first and the third cohorts and remains mostly stable over the following two cohorts, but increases again between cohorts five and seven. This pattern corresponds loosely with the trend of declining occupational segregation by gender in the U.S., particularly among the college educated (Blau et al., 2013) and runs parallel to the decreasing fluidity of African-American women described earlier.

Figure 45: Best model 21 for changing fluidity in the U.S., women



Note: Model allows for uniform heterogeneous change over cohorts of CE1 and AF1, and linear change of IN2. Other parameters are held constant across cohorts. Model statistics: $df = 421$, $G^2 = 711.2$, $rG^2 = 80.0\%$, $P-value = 0.000$, $\Delta = 4.5\%$, $BIC = -3{,}786.2$, $AIC = 4{,}072.7$, $N = 43{,}596$.

The other two parameters AF1 and CE1 are harder to interpret given that they work in addition to the inheritance and hierarchical parameters. Most likely, the decreasing country-specific affinity term CE1 is due to the change in agricultural production and rural life which reduced the positive association between farm origins and lower service employee destinations, and the declining association between service worker origins and self-employed destinations. At the same time, the positive affinity increased mainly because of the increasing intergenerational association between professional and semi-professional classes among women, most likely due to the quasi-inheritance achieved by daughters of professionals who enter the lower semi-professional class. While we cannot decompose the overall fluidity trend into these components, it is important to note that both the inheritance and the positive affinity terms are likely to account for the uptick in women's social fluidity in the next to last cohort if only because no other effect shows a similar pattern across cohorts.

The comparison of white women with all American women yields little that is new. All effects point the same direction, however, the increasing trend in the special inheritance (IN2) and the u-shaped trend in the affinity (AF1) parameters is not significant anymore. Thus, both effects are likely to be driven by African-American and Hispanic women, a finding that is in accordance with earlier findings of declining fluidity among African-American women relative to white Americans (Figure A. 4). However, the pattern of the respective effects among white women resembles closely the one presented above for all American women, which is why a further differentiation makes less sense than among men. Although there are clear differences in fluidity between African-American and white women, there is no chance to infer them from the data and the used strategy more about racial differences at this point.

12.4 Summary

The fluidity pattern of U.S. Americans is on average characterized by vertical as well as segmental class barriers that limit the association between different origin and destination classes. At the same time, however, mobility propensities seem to be generally higher in the United States to the extent that within-segment mobility barriers and barriers around the service working classes are either non-existent or very weak. The class barriers surrounding the service working classes are only weak white Americans, other racial minorities also face significant obstacles lowering relative mobility propensities between the service working classes and the higher classes. Nevertheless, we find particularly strong hierarchical effects diverting fluidity between manual classes and higher classes and high degrees of social reproduction in the highest classes, especially the professionals. Consequently, we again find in the direct comparison of the schemes, that there is more intergenerational association between the IPICS classes than can be explained by reference to the primarily vertical EGP scheme alone.

In accordance with other studies, the trends in social fluidity over the last century in the United States point towards moderately growing permeability. Social fluidity increased among all Americans over the last century, particularly in the generations born between the mid-1920s and the mid-1950s. The following birth cohorts are largely characterized by constant social fluidity chances which are, however, still greater than that of those Americans born before 1924. While social fluidity decreased among women in the next to last cohort and thus rendered the no-change conclusion for women preferable, it increased among both men and women in the most recent cohort.

A more detailed analysis by race that differentiates African Americans' and white Americans' fluidity levels finds that social fluidity levels are not only lower among African Americans than among whites, but that the trends also differ. While social fluidity among whites resembles much the same trends for all Americans, social fluidity among African Americans decreased across cohorts born in the first half of the 20th century, only to increase thereafter among men to a comparable level as was observable among white American men. Among African-American women, however, we find that the increase in social fluidity starting with the post-WWII cohorts is brief and followed by a new decline of relative mobility chances in the last two cohorts. The latter development causes trends in fluidity among all American women to become insignificant, whereas social fluidity of white women increased again mostly across the cohorts born around the middle of the century.

The divergent trends among whites and African Americans are explained in terms of the changes in the institutional system that governs the relegation of social positions in the United States. The initial decrease in fluidity coincides with the greater occupational opportunities for African Americans after the fall of legal segregation. It was only then that parents could muster all their resources to provide their children with a better future, or in case of those from higher social backgrounds, to achieve class reproduction independent of race. The expansion of education and public employment and the less racially biased hiring policies allowed for well-educated African Americans to enter middle and high status jobs in the public service, particularly those who came from higher origins themselves. At the same time, affirmative action that initially disproportionately favored white over African Americans did not lift all boats and the increasing segregation in the beginning of the second half of the 20th century might have also decreased upward mobility chances, especially for the African-American blue collar workers who experienced the exodus of many low-skilled industrial occupations. White American men, on the contrary, profited not only from the decreasing social reproduction in the higher classes, but also from the decline of long-range barriers between the lowest classes and the highest classes. The decline of social fluidity, therefore, went along with increasing mobility chances at the extremes of the class distribution. Because of the timing of the weakening of these mobility barriers it is likely that full employment, the war on poverty and allowances for higher educational attainment were crucial to increase mobility chances for white Americans. Over the following cohorts, social fluidity remained stable among white men. Racial differences among women are also quite pronounced. While social fluidity increased among white women across all but two cohorts of stagnant fluidity, African-American women experienced decreasing fluidity across most of the last century. While growing fluidity among white women is likely to reflect the greater educational attainment and growing occupational opportunities over the last century, decreasing fluidity among African-American women is likely to originate from increasing opportunities to follow into higher parental positions and, for the less well-off, limited and educational opportunities among African-American women in the latter cohorts.

13 Social mobility in two post-industrial societies

This last chapter has two aims. First, it picks up the multiple threads that run through this work and tries to create a synopsis of the preceding chapters to provide a unified understanding of this work and its results. The remainder of this chapter tries to answer the one big final question that cannot remain unanswered in a comparative work: the question of differences between the intergenerational permeability in the United States and Germany. This conclusion closes with a discussion of some of the limitations of this work and the suggestion of possible future venues for expanding the research started here.

Social change changes mobility?

After a brief introduction, this work started in Ch. 0 with a stylized review of change in industrialized countries over the 20th century and the elaboration of different hypotheses about the influence of societal change on intergenerational mobility. The economic sphere was singled out as most important for the explanation of changes of intergenerational mobility. The most decisive of these changes was the economic transformation of societies from agricultural-industrial to industrial and finally, most recently since the 1970s, to post-industrial societies. While this transition was gradual and anything other than universal, it occurred in almost all G7 countries and, arguably, in all modern countries that are well integrated in the global economy. This change in economic activity was accompanied by the transformation of the mode of production. It started with the diffusion of Fordist production and Taylorist work management over the first half-century, then continued with post-Fordist production modes like the diversified quality production or other forms of flexible specialization and, finally concluded with lean production methods in combination with post-Taylorist or neo-Taylorist work management strategies that replaced the earlier modes of production and increasingly were generalized to economic activities outside manufacturing. While economies nearly linearly grew over the last century and societies became ever more affluent, living conditions also rose, although not as linearly or universally.

In the post-WWII economic boom years, the golden age, the process of civilization, understood here as betterment of the living conditions of all people, grew in momentum. Economic growth following global trade expansion and the stalled

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development between the beginning of the First and the end of the Second World War, lifted many boats. Full employment allowed ordinary workers to participate in the growth of affluence resulting in declining inequality in all Western countries. At the same time, the welfare states expanded and decommodified, to a cross-nationally varying extent of course, the lives of the disabled, the old, the poor and the sick. The three decades following the end of WWII brought affluence to the masses and generalized the model of mass consumption even for those who were not (any more and yet) economically active. In the United States, this development was further fueled by the civil rights movement which freed African Americans finally from the crassest forms of racial subjugation and disenfranchisement under Jim Crow. The most important and universal field of welfare state growth for this work is the educational expansion, which generalized education starting in the 1950s and going on for most of the remaining decades of the 20th century by allowing ever increasing numbers of individuals to enroll in secondary and tertiary education. While this moment of multi-dimensional affluence was conditional on global inequality and a long history of exploitation and a shorter history of mass murder, (democratic) equality was within reach of the people in the Western industrialized countries at the end of the golden age, maybe for the first time ever in their history. However, it was not meant to last.

While economic growth cooled down over the next four decades after the mid-1970s, unemployment recurred in the wake of deindustrialization. Welfare state expansion slowly stalled and financial constraints grew, driving inequality. Similarly, further gains in educational enrollment translated to a lesser degree into equalizing educational opportunities. During periods of growing polarization, the degree of commodification increased again and politics of work enforcement pushed ever more people into the expanding post-industrial services. At the same time, however, women made inroads into paid employment and were, if not freed from the patriarchal lot of housework, ever more able to emancipate themselves from male economic dominance. While for many, this was a better world than that of their forbearers, others felt again the plight of servitude as interpersonal services grew in importance. Consequently, the managerial and administrative middle classes of the era of industrial capitalism were supplemented and supplanted with the rise of the information age by the post-industrial professional and semi-professional classes. Working classes on the other hand increasingly traded the blue for the pink-collared shirt. The result was a more even mix of classes at the end of the century than at its beginning or middle, and an increasing dispersion of economic resources and the value of educational assets.

While this overly simplistic and unduly universal description glosses over much cross-national variation and excludes the majority of humankind completely, it makes the point that economic and social change was likely to affect intergenerational mobility experiences and mobility chances significantly over the course of the last century. And while the industrialization theory in fact predicted the coming of a (more) meritocratic society, the theory of no directional change in the intergenerational permeability received support more frequently under empirical scrutiny. Obviously and quite uncontroversial, intergenerational mobility experiences have massively changed over the last century, driven by the massive upgrading of the occupational structure. However, the mobility chances which are a measure of the permeability of societies did not increase equivalently. This puzzle of highly visible economic and social change, on the one hand, and the stability of relative mobility chances, on the other hand, then motivated me to think about the institutional conditions that arguably might have had an influence on social fluidity and to what extent they are actually the same things that also drove absolute mobility. In an adaptation of the phenomenon of effectively or maximally maintained inequality, I suggested that in order for the intergenerational inequality order to be changed substantially, conditions of origins must equalize at least in terms of economic assets and access to educational opportunities. However, at the same time, access to higher positions has also to become less selective, which is a given especially in times of full employment or in times of expansion of higher positions that nearly exclusively select on achieved criteria like educational credentials. Only if both conditions are met, will the level of reproduction in higher classes be saturated, and can inroads from lower class families be made that affect the relative intergenerational inequality with regards to mobility. While this thesis did not set out to test these expectations directly, it uses this explanatory frame as guidance for the interpretation of its empirically descriptive account.

Setting out for new borders: the inception of the IPICS scheme

Why did earlier accounts not find the assumed coexistence of social change, absolute and relative mobility trends? One reason may be that they adhere to a methodological paradigm which was well suited for the description of industrial capitalism until the 1970s, but increasingly fails to note the horizontal transformation that the occupational-structural change brought along in tandem with the broader societal change. Therefore, Ch. 3 reviewed earlier accounts of operationalization of the realm of social positions. While the EGP scheme, the paradigmatic measure for positional inequality in international stratification research, took up the most space in this critical review, other class schemes and gradational measures were discussed with the aim of finding a fitting concept to employ in the following mobility analyses. While all measures indisputably have their merits, they all lack either the needed horizontal differentiation between industrial and post-industrial positions or a vertical structuration exclusively according to structural, i.e. occupational, characteristics. Failing to find a fitting concept to study social mobility over the *longue durée* for my question, I decided to devise a class scheme based on the reviewed accounts.

The derived class scheme of **i**ndustrial and **p**ost-**i**ndustrial **c**lasse**s**, in short IPICS, conceived in Ch. 4, is based on an earlier scheme introduced by Esping-Andersen. In its theoretical foundation, however, the IPICS scheme relies in its current formulation on the horizontal differentiation of occupations in two segments according to the dominant organizational-technical or interpersonal work logic elaborated by Oesch. Its vertical differentiation, on the other hand, is founded in Goldthorpe's influential treatise on employment relations that directly or indirectly stratify economic prospects among employees. While the two latent dimensions of employment relations are mingled together in Goldthorpe's account, however, I resorted to Wright's stricter separation of the two elements in authority and expertise to argue that both horizontal hierarchies have different primary, although certainly commensurable, principles of stratification. The reason for that is not only that the horizontal and the vertical differentiation in this way are in greater accordance, but that for the bulk of newly created positions within post-industrial societies the degree of expertise or, to take the structural perspective, the skill-specificity of tasks is increasingly important. The resulting class scheme comprises four industrial classes – managers and administrators, clerks and officers, skilled manual workers and unskilled manuals workers – and four post-industrial classes – professionals, semi-professionals, skilled service workers and unskilled service workers – and, in addition, of small and medium self-employed, farmers and agricultural workers. Based on the rational choice theory of social mobility developed by Goldthorpe and enriched by socialization theory, the chapter drew to an end by formulating expectations about class-differences of intergenerational mobility based on class-specific resources, daily work experiences and parenting styles.

After having devised a class scheme, Ch. 5 set out to assess the validity of the IPICS classes in terms of the assumed horizontal and vertical differences with regard to work logics and the two dimensions of employment relations. Results were promising in the United States as well as in Germany. Classes clearly differed in terms of typical conditions in which, arguably, the respective work logics thrive while they also differ substantially in terms of employment conditions, economic prospects and forms of non-wage compensation. IPICS differ substantially in the ways the theoretic foundation would have predicted it.

After this initial validity test, a brief description of the further employed datasets, the assignment process of occupations to IPICS and the design of the analysis sample was given in Ch. 6. The employed methods are described in more detail in an appendix to this work in Ch. 15.4. A large array of 15 unique datasets were harmonized to be used in tandem for the study of social mobility over the *longue durée* which uniquely allows for the revelation of any influence the described trends of social change might have had on intergenerational mobility. While each single dataset has been used for the study of social mobility before, they are all prone to underestimate change because they are trapped in the periods in which they have been conducted. This is the first time that these datasets were employed together in the United States and, in tandem with the new class scheme, also in Germany.

The empirical analysis of social mobility started in Ch. 7 with the analysis of its anterior and subsequent conditions by inquiring about selected socio-demographic characteristics and disposable educational, economic and social assets that typically stratify actual life chances, resources for mobility strategies and rewards to class mobility in both countries. It became clear that both hierarchies are well ordered with the exception of clerical workers, which are economically on par or below the skilled manual workers. Furthermore, there are several indications that unskilled service workers are in fact vertically below the unskilled manual workers, at least in terms of their personal incomes. While I found that classes differ substantially with regard to available cultural and economic assets, they also reflect the different occupational opportunities resulting from gender and ethnic differentiation. Several class profiles provide a synopsis of the unique characteristics of each class and argue in favor of the suggested differentiation. In a concluding chapter, the question of occupational-structural change was again taken up and the transformation of the class distribution across time showed that the last four decades were characterized by an initial upgrading of occupational positions supplemented by an increasing polarization starting around the 1990s, i.e., with the onset of polarization policies propagating and expanding workfare policies.

The IPICS scheme and the analysis of social mobility

The final four chapters were exclusively devoted to the employment of the IPICS classes for the empirical analysis of social mobility. Intergenerational mobility was then studied in each country separately following mostly the same protocol. Initially, absolute mobility was described before the study of relative mobility came to the forefront. In the following review, I reorganize the above presentation of findings which was chosen in order to allow for the various sub-analyses. While always putting the reader (and sometimes the author) at danger of losing grip on the large amount of different analyses, it seemed necessary in order to highlight equally important but quite separate issues. The reason for this hybrid approach lies in the scope of this work. The study of intergenerational mobility trends in two countries in combination with the introduction of a new class scheme to describe this trend rendered such an approach both useful and confusing at the same time. Forsaking the frequently large differences between the diverse subpopulations studied – most importantly, East and West Germans, white and African Americans – the following synopsis will favor national and cross-national similarities to allow for a reevaluation of the initial assumptions about the evolution of social mobility over the 20th century in the two industrialized countries under study. To obtain detailed information on group differences, the interested reader is redirected to the summaries concluding each of the analysis chapters (for absolute mobility differences between East and West German Ch.8.5 and for absolute and relative mobility differences between African Americans and white Americans Ch. 9.5 and Ch. 12.4).

Before reviewing the results of the trend analyses, I will start with the ability of the IPICS scheme to reveal new insights into the mobility process (Ch.8 and Ch. 9). Regarding mobility experiences, i.e., absolute mobility rates, I observed satisfactory levels of class reproduction to judge the IPICS classes as classes in the commonly understood sense of the term, i.e. as intergenerationally frequently stable positions. While immobility, as is usual in mobility studies, is not the most frequent outcome of intergenerational trajectories in either of the countries, a larger fraction of individuals than would be expected if class had no constraining influences and mobility were random, remained in their origin class, or especially in the case of women from male-dominated classes, entered in a vertically similar but horizontally different class position. Moreover, horizontal mobility allowed in particular, although to a decreasing extent, the highest industrial class to intergenerationally maintain their high status. To use an idea from Bourdieu (1984), the primarily economic elites were able to assure their children's class reproduction through transforming their economic and social capital into educational degrees, which are of upmost importance for attending the highest classes in the post-industrial stratification order. Where this was not possible, e.g., due to little effort or talent, the petty Bourgeoisie, arguably, also remained a frequently more acceptable destination than the ordinary working classes. Similarly, frequent mobility was found between industrial and post-industrial working classes, especially for women. Interestingly, the gender segregation of the unskilled working classes increased over time, which renders the IPICS scheme especially useful for the joint analysis of class origins of mothers and fathers. Eventually, the IPICS classes have, in my mind, proven their worth by allowing us to distinguish different paths of intergenerational mobility and account for the increasing feminization of the class structure.

The analysis of relative mobility chances further demonstrated that class inheritance and hierarchical barriers, arguably due to class differences in available different economic and cultural resources and the inertia of class origins due to preference formation and other socialization effects, severely limit relative mobility chances (Ch. 11 and Ch. 12). Furthermore, topological models of social fluidity revealed that between- and within-segment barriers differ in their permeability between industrial and post-industrial hierarchies. Mobility barriers were always weaker with regard to within- than between-segments. And mobility propensities obtained under the satisfactorily fitting model of social fluidity further indicated that fluidity is higher within the post-industrial than across segments from industrial origins to the extent that individuals from service working classes faced better mobility chances in achieving long-range upward mobility than individuals originating from manual working classes. Because any new measure has to prove its additional utility relative to the dominant ones, IPICS and EGP were also compared directly in terms of their ability to account for the origin-destination association (Ch. 11.2 and Ch. 12.2). These (initial) results are promising. I can demonstrate that in both countries, the horizontal differentiation assumed by the IPICS scheme significantly benefitted the description of the origin-destination association.

Changing intergenerational mobility experiences over the course of the 20th century

The change of the origin, education and destination class distribution across cohorts set the stage for the following analysis of changes in absolute mobility (Ch. 8.1 and Ch. 9.1). While the origin distribution changed little across cohorts with the exception of the marked decline in farm origins and some increase of post-industrial origins, educational attainment rose continuously. The destination class distribution, however, upgraded considerably and, in the last cohorts, displayed some degree of polarization with the simultaneous growth of higher and lower post-industrial occupations. Across cohorts, clerical positions and, to a lesser extent, manual working classes contracted as ever more routine occupations fell prey to automation, mechanization and offshoring. Accordingly, mobility experiences changed substantially over the 20th century.

The occupational-structural change mediated mobility experiences differently for individuals born in industrial or post-industrial classes (Ch. 8.2 and Ch. 9.2). While social reproduction frequently increased in post-industrial classes and declined in industrial classes, the opposite is true for horizontal mobility. In contrast, upward mobility within the post-industrial segment increased, but decreased within the industrial hierarchy. Vice versa, individuals from industrial origins increasingly needed to change segments to achieve upward mobility, whereas upwardly mobile trajectories starting in post-industrial origins declined across cohorts. Only with regard to downward mobility was no clear pattern distinguishable, arguably due to the increased occupational polarization that limited the contraction of the unskilled manual classes while spurring the growth of unskilled service classes. With regard to aggregated vertical mobility patterns, two phases are discernable over the 20th century (Ch. 8.3 and Ch. 9.3). Over the first three to four cohorts, upward mobility increased substantially in both countries, while downward mobility decreased especially among women. However, these trends stalled and partly reversed, most recently among cohorts born in the 1960s. Over these cohorts, downward mobility became again an increasingly frequent trajectory. While horizontal mobility declined over the century mostly due to the extinction of farm origins, class reproduction declined only modestly among men and increased among women who were increasingly able to enter the higher post-industrial positions.

In essence, the analyses of absolute mobility reveals two remarkably similar findings. First, while the turbulences of the first half of the last century and the long phase of economic growth in the immediate post-war era allowed for ever more individuals to ascend to higher positions and limited the descents, these trends ended with the cohort that came of age over the last three decades. Second, women profited disproportionally from the occupational structural change that allowed them to increasingly attain higher positions and terminated the in earlier times usual restriction of (employed) women to the lowest working classes. In spite of all the continuing and frequently lamentable differences, women are increasingly on par with men in terms of vertical intergenerational mobility.

In light of the drastic changes in absolute mobility experiences, the question of whether the occupational-structural change might also have affected the relative permeability for men and women in both countries is pressing. While the change in the distribution cannot have had such an effect due to the margin insensitive nature of the employed methods, the growth and contraction of classes might have indirectly affected openness by requiring less or more selective recruitment strategies, or by diminishing the value of the reference frame obtained during childhood and adolescence. Most importantly, partially equalizing educational opportunities and the increase of educationally selective positions might have bettered mobility chances in lower classes, while providing enough room for reproduction to uphold and stabilize advantages in higher classes. Especially fluidity among women might have changed over the last century. While the contraction of clerical occupations and the simultaneous increase of (semi-)professional classes arguably went along with the growing importance of educationally selective occupations for women, educational expansion effectively reduced educational inequalities especially among women.

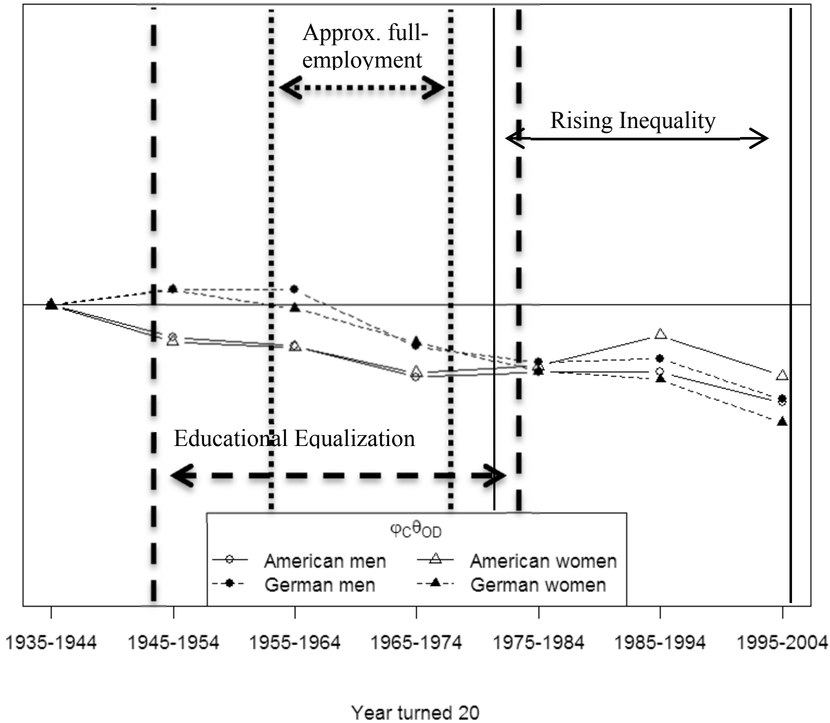
The results provided by the analysis of social fluidity in both countries strongly confirm this finding (Ch. 11 and Ch. 12). Both societies became remarkably more fluid over the last century. The trend towards greater permeability, which is similar for German and white American men and women was, however, not equally distributed across cohorts. In both countries, fluidity increased up until the cohort of individuals born in the 1950s. While this increase started in the United States with the second cohort, it happened in Germany only with regard to the cohort born in the decade after the end of World War II. While social fluidity remained stable over the following two cohorts among men and only modestly increased among German women, it remained stable among German men and white Americans in the following two cohorts. Only in the final cohort did fluidity again increase in both countries among all groups. However, this last increase was so uniform across gender, race and country that it is likely the result of the young age for which we have obtained class information. Further mobility might easily reverse this pattern in the future. While the analysis of change remains at various points inconclusive for American women, it is likely that declining inheritance effects and, among German men and women, hierarchical barriers reduce the origin-destination associations across cohorts. This finding goes well with the educational equalization explanation because one would expect that barriers towards mobility chances weaken if access to higher education becomes more equal. At the same time, the declining inheritance effects point towards occupational-structural change. The unparalleled increase of post-industrial higher positions might have redirected social mobility strategies among managerial classes from simple immobility to rather lateral mobility into the growing professions, weakening inheritance here.

A remarkable difference was found with regard to African Americans. While fluidity generally increased among white Americans, it decreased among men and women of this group. Arguably, this results from two phenomena. Having overcome the worst institutions of racial subjugation by the 1960s, African Americans from higher class backgrounds are increasingly able to follow their parents in their positions, independent of their race. At the same time, however, African Americans living in segregated neighborhoods hard hit by deindustrialization and the decline of inner city infrastructure and schools, continuously face disadvantages that prevent their upward mobility. Consequently, fluidity is lower than in the reference period in which African Americans, independent from their class origins, were generally confined to the lowest class positions and only achieved upward mobility through extraordinary abilities and chance.

What, then, do these findings allow one to say regarding the alternative hypotheses proposed in the beginning of this work? Neither absolute nor relative mobility chances confirm the industrialization thesis. While it is true that upward mobility increased and downward mobility declined in the beginning of the 20th century, and both societies became more open for those born in the middle of the century, this trend was neither irreversible, nor did it continue throughout the whole century. Both the stalling or declining upward mobility experiences, as well as the stagnating social fluidity, powerfully contradict the expectations derived from a theory that predicts ongoing rationalization and technological development. Especially the increasing immobility in the working and professional classes for those born close to the end of the century, in combination with the stability or recent strengthening of long-range barriers, counteracts the expectations of growing equality of opportunity.

Similarly, the trendless fluctuation cannot be confirmed unambiguously. While the development of the absolute mobility rates tentatively supports this finding, especially among American men, the in fact pronounced decline in social fluidity does not confirm this description. While one might argue, much in line with Sorokin (1927 [1959]), that trendless fluctuation points exclusively towards the vertical mobility chances in societies, and that a class scheme that differentiates horizontally might react, maybe even spuriously, towards changes in mobility chances regarding vertically similar classes, such an objection can quickly be answered with reference to the studied vertical differences even between horizontally aligned classes. The likely technologically driven change bolsters the importance of educational degrees for economic returns on the labor market, hence horizontal differences between a hierarchy primarily based on skill specificity and one based on authority are also to varying degrees, of course, vertical differences. Nevertheless, elements of both explanations – the industrialization and the trendless fluctuation theorem – are taken up again in the effectively maintained inequality hypothesis about the conditions which drive absolute and relative mobility.

Figure 46: Social Change and social mobility chances



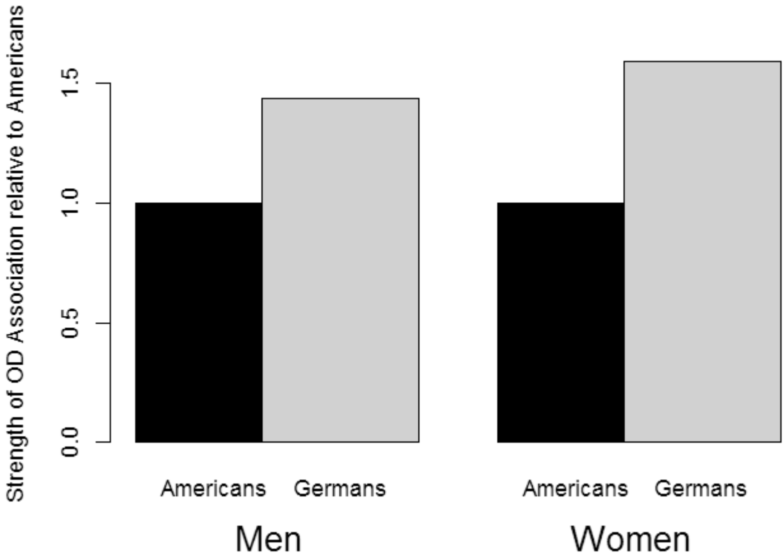
Note: UniDiff parameters are taken from Table 49 and Table 58. Lines are drawn based on Figure 4, Figure 6 and, regarding educational equalization, my interpretation of the findings provided by (Breen et al., 2009, 2010; Pfeffer & Hertel, 2015).

As argued in Ch. 2.1, welfare state expansion mostly through educational equalization, full employment and rising inequality due to polarization are the most likely candidates to have affected not only absolute mobility but also relative mobility chances. Instead of repeating the argumentation from Ch. 0, the UniDiff parameters are displayed for American men and women and German men and women in Figure 46. I changed the label of the x-axis from the birth year to the year in which each cohort was around 20 years old in order to create a clearer picture of the timing of each societal trend and the development of social fluidity in both countries. As is immediately evident, the initial increase in social fluidity coincides with cohorts which likely profited most from the educational expansion in terms of the equalization of (mostly lower) educational opportunities, whereas change for all four groups only became evident in the phase of approximate full-employment in which the second and third cohorts entered the labor market, arguably, facing better opportunities than cohorts born either before or afterwards. Finally, the stagnation of fluidity falls into a period of rising inequality and growing polarization. While Figure 46 represents little more than informed speculation, its sheer possibility hopefully motivates further research that can prove the suggested relationships.

13.1 Comparing social fluidity levels between the U.S. and Germany

Before finishing this work, however, I will very briefly try to give an answer about the differences between Germany and the United States in terms of social fluidity. The following analysis will be incomplete and is primarily meant to appease those readers who expected a full-fledged comparative account of social mobility in both countries. But the analysis is also meant to immunize readers from deducing comparisons from the different trends within each country, which based on the findings presented so far, are only justified if trends are compared. The following analysis is based on the combined two national samples and thus suffers from all of the "biases" regarding the sample composition that affected the estimates for the national samples. Bias is in quotations because it is, in my mind, more problematic to exclude subgroups from the population and to create, for better or worse, a picture about social fluidity for another subgroup at the cost of reliable information on the mobility chances as they are collectively experienced within a given society. Figure 47 presents the UniDiff estimates from a model which compares the overall degree of fluidity of German men and women with that of American men and women (model statistics are provided in the note). For presentation purposes, the estimates are exponentiated. As is evident from the figure, American men and women are on average more fluid than Germans (Erikson & Goldthorpe, 1992; Beller & Hout, 2006a). Assuming that mobility patterns of Germans are equal to that of Americans, relative mobility chances are roughly 1.4-times lower among German men and 1.6-times lower among German women compared with Americans. If we were to compare Germans solely with white Americans, the respective factors would be even larger (1.5 and 1.8). Both contrasts are statistically significant at the usual 0.05 significance level.

Figure 47: Strength of mobility chances in Germany and the U.S.



Note: Combined cross-national dataset. Model statistics for men: $df = 63$, $G^2 = 767.7, P-value = 0.000$, $\Delta = 2.7\%, BIC = 36.9, AIC = 2241.7, N = 109{,}179$. Model statistics for women: $df = 63$, $G^2 = 494.6, P-value = 0.000$, $\Delta = 2.9\%, BIC = -214.5, AIC = 1901.6, N = 77{,}293$.

The second question is, however, to what extent the trends differ between Americans and Germans. To answer this question, I again turn to cohort comparisons in the combined dataset. Table 61 presents the usual fit statistics for six models that describe social fluidity in Germany and the United states for men (upper panel) and women (lower panel). While the first model constitutes a proper model of (conditional) independence for reference purposes, models 2 to 6 each formulate assumptions about cross-national differences in the fluidity levels between Americans and Germans. Model 2 assumes a constant association between origins and destinations, which is the same in both countries. Model 3 fits cohort-varying OD-parameters but assumes no difference between nations. In contrast, model 4 assumes that social fluidity differs between Americans and Germans, but that there is no change across cohorts in either country. Model 5 assumes changes across cohorts and differences between countries (in a two-group comparison, the UniDiff model, of course, boils down to fitting the three-way NOD margin).

Model 6, on the contrary, assumes different fluidity patterns between countries but assumes cohort change across a uniform origin-destination pattern.

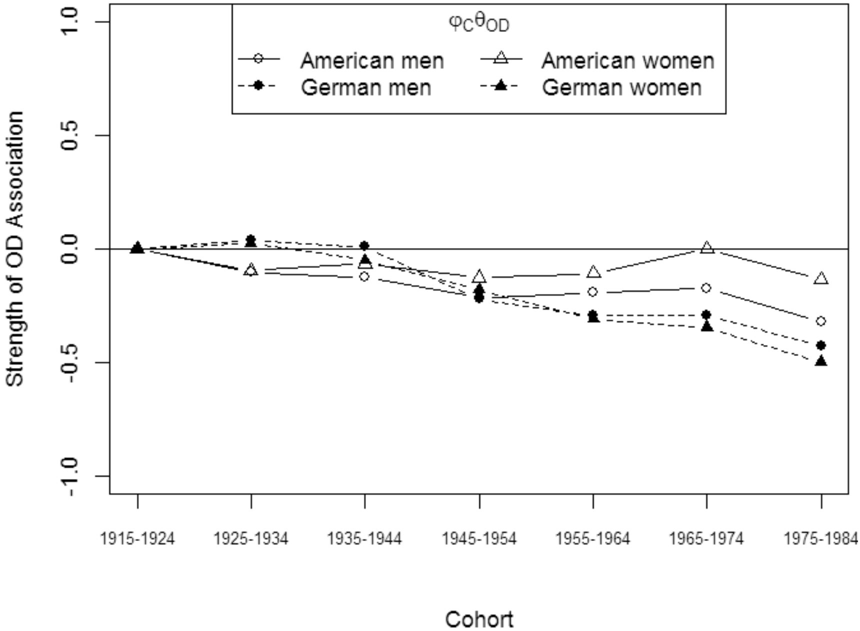
Table 61: *Models for country differences in social fluidity*

M	*Parameters*	*df*	*G^2*	*rG^2*	*P-value*	*Δ*	*BIC*	*AIC*	*N*
				Men					
1	DCN,OCN	896	18100.1	n.a.	0.0000	15.1	7,705	25,001	109,179
2	1 + OD	832	2271.8	87.4	0.0000	4.8	-7,380	9,301	109,179
3	2 + COD	448	1695.4	90.6	0.0000	3.9	-3,501	9,492	109,179
4	2 + NOD	768	1131.4	93.7	0.0000	3.3	-7,778	8,288	109,179
5	2 + COD +φ_NOD	384	515.3	97.2	0.0000	1.9	-3,939	8,440	109,179
6	2 + NOD + φ_COD	699	882.3	95.1	0.0000	2.9	-7,226	8,177	109,179
				Women					
1	DCN,OCN	896	8872.7	n.a.	0.0000	11.6	-1,212	15,234	77,293
2	1 + OD	832	1858.6	79.1	0.0000	5.0	-7,505	8,348	77,293
3	2 + COD	448	1282.4	85.5	0.0000	4.0	-3,760	8,540	77,293
4	2 + NOD	768	1059.6	88.1	0.0000	3.6	-7,584	7,677	77,293
5	2 + COD +φ_NOD	384	487.8	94.5	0.0003	2.3	-3,834	7,874	77,293
6	2 + NOD + φ_COD	699	874.3	90.1	0.0000	3.3	-6,993	7,630	77,293

Note: Combined cross-national data set.

While no model fit among men according to the likelihood ratio test statistic, model 4 is superior according to the BIC statistic and model 6 according to AIC. In both cases, the deviance reduction is substantial and misallocation is negligible. Contrary to earlier findings (Erikson & Goldthorpe, 1992), it follows that differences in the fluidity pattern between Germans and Americans are significant and that some trend is likely. Among women, however, model 5 is accepted by the likelihood ratio test statistic. Thus, one can conclude here that among all women, social fluidity changed across cohorts and that the pattern of social fluidity differs between both countries. As is obvious from the country chapters, Americans have very specific fluidity patterns due to their history of racial subjugation. Models 2 and 3, which assume a common social fluidity pattern, are clearly rejected for both genders and, hence, an analysis like that displayed in Figure 47 is discouraged because the assumption of a uniform fluidity pattern does not hold. However, as the dissimilarity index of model 3 shows, the mobility trajectory of a vast majority of men and women (both 96%) is properly predicted if cohort change is assumed but national idiosyncrasies are ignored. Thus, I finally present one model that (wrongly) assumes uniform, i.e., American, fluidity patterns among men and women and models the strength of the OD-association across cohorts jointly for Americans and Germans. Because we already know that the overall association between origins and destinations is stronger in Germany than in the United States, we interpret the change across cohorts in the combined datasets as depicted in Figure 48.

Figure 48: Comparing fluidity trends across countries within genders



Note: Combined cross-national dataset. Reference category is always the first mobility table of American men and women. Model statistics for men: $df = 819$, $G^2 = 1682.4$, $P - value = 0.000$, $\Delta = 4.1\%$, $BIC = -7{,}818.6$, $AIC = 8{,}737.7$, $N = 109{,}179$. Model statistics for women: $df = 819$, $G^2 = 1474.9$, $P - value = 0.000$, $\Delta = 4.5\%$, $BIC = -7{,}743.2$, $AIC = 7{,}799.1$, $N = 77{,}293$.

While the trend lines are very similar to those obtained from the national models, we now see that the overall increase of fluidity (from different starting points) was much stronger over the last three cohorts among Germans than among Americans. One reason for this could be the stronger increase of inequality in the United States that enables higher degrees of social reproduction among higher classes (Mitnik et al., 2013). As stated previously, however, these results are prone to error because they assume that the fluidity pattern of American men and women also holds for Germans, so that the diverging trends could also result in part from growing differences in the fluidity patterns.

13.2 Shortcomings and future work

While this work has produced a plethora of interesting findings that have been addressed in the most detail possible given the restrictions of time and space, there are several shortcomings which need not be silenced, even if it is only to prevent others from making similar problematic, but partially unavoidable, choices. First, the study of mobility differences between American regions revealed very little. This does, however, not mean that differences do not exist. While the regional differentiation is itself most likely too coarse to find differences, the greater problem arises from the fact that regions are based on actual residency instead of origin residency. Further elaboration along these lines would have to first employ information on the area in which individuals grew up and, second, study state level or even finer grained county information to study the interrelation of changing structural opportunities and social mobility.

Second, while this thesis concentrated almost exclusively on the development of mobility in terms of social change along the lines of post-industrialization, the decline of agricultural origins and with it urbanization might have played a larger role in the presentation of results and modeling decisions. I deliberately modeled the association between independent classes and other classes within the affinity terms to obtain net effects for mobility between employee classes which are the prime interest here. However, for the analysis of change, the changes in the agricultural population at the beginning of the century might also play an important role for the understanding of early gains in social fluidity, especially in the United States (Erikson & Goldthorpe, 1992; Long & Ferrie, 2013; Xie & Killewald, 2013). Future analyses that solely concentrate on the fluidity trend and less on the introduction of a new class schema will have to solve this problem by singling out hierarchical effects pertaining to the independent classes.

Third, the differences between African Americans and white Americans have proved consequential for the analysis of social fluidity. Therefore, a proper weighting strategy is almost indispensable for future trend analyses of the total population that abstain from the analysis of sub-samples. While there is no easy solution to the weighting problem, strategies along the lines of Ch. 15.2 in the appendix and the inclusion of information on the sampling design from the original surveys may help to devise a way that does not unduly introduce bias by using period weights in a cohort design.

Further avenues for the analysis of social fluidity using the IPCIS scheme

This work introduces a new class scheme for the analysis of social mobility without having to exhaust the possibilities of the new scheme to any extent. The speculations about different modes of reproduction among classes in both hierarchies introduce work within the classical status attainment process in order to show the existence and development of these transmission processes. While status attainment models are one way to do that, another useful application could be the exploitation of the panel structure of three (PSID, SOEP, NEPS) employed datasets. This line of research would allow for the discovery of whether there are indeed different parenting styles between IPICS, and to what extent they affect the mobility process in addition to or in contrast to the role that other resources play for educational and occupational attainment.

Furthermore, the possibility of studying some of the different subgroups that have been ignored in the above analyses (e.g., migrants, Hispanics) can be performed once one foregoes the interest in the long-term trends and contents oneself with more inclusive cohort definitions. Similarly, East and West Germans have been studied together in this work. While this was warranted by the similar fluidity pattern found in supplemental analyses, it might still be interesting to describe existing differences in more detail and devise designs which allow for better mapping than has been done in this work. Especially differences between East Germans who remained there after unification and those who moved to West Germany to take advantage of educational and occupational opportunities might be gainfully exploited for a more fine-grained description of fluidity in Germany.

Finally, the dual study of social fluidity in two countries needs to be broadened to include various other countries in order to support the claim of similarity of trends in social fluidity. Various international and European datasets (e.g. the European Social Survey or the European Union Statistics on Income and Living Conditions) by now include information on fathers and sometimes on mothers to allow for a larger cross-national comparison. On the contrary, the joint work with other interested researchers may allow for the preferable comparison between nations employing less error prone national data sets. Whatever the strategy, if the pattern that was found in the United States and Germany was to hold for other industrialized countries as well, an elaboration of the effectively maintained inequality for social fluidity and the related criticism of the more widely shared intergenerational inequality pattern is well overdue.

In summary, my aim in this work has been to make a substantial contribution to what we know about social mobility. For that purpose, various datasets were assembled and harmonized which have hardly or never been used together before. This extensive data base allowed for the study of intergenerational mobility over a longer period than most studies have covered in the past. The findings showed a consistent trend of increasing upward mobility experiences over the middle of the century and decreasing upward mobility, but increasing or stagnating downward mobility among those cohorts that came of age in the more recent decades. It was also showed that societies grew more permeable in the middle of the last century, whereas changes thereafter were rather modest if at all visible. To explain these findings, I singled out necessary historic conditions which can explain the change in absolute and relative mobility.

What then can finally be learned from the following pages in a more practical way? While it is not easy to break the complex and partly quite abstract findings down on a pragmatic level, the exploratory and innovative elements of this work and the limited number of studied cases dictate caution against drawing premature conclusions. The found common patterns and the analyses done, however, suggest points of a more general nature. The first is that the contemporary version of capitalism with which we struggle, in which we succeed and fail, does not lift all boats or allow for the same upward mobility experiences as earlier versions in the 1960s, despite all their shortcomings. Because the economic and political constitution cannot have any other rational purpose than to benefit the individuals who by chance have to bear it, this means that powerful economic actors should take all measures necessary to guarantee that upward mobility increasingly becomes a possibility for everyone. These measures include, but are not restricted to: the creation of public jobs, the subvention of high-grade private jobs, the legally enforced upgrading – in terms of economic returns – of all jobs and, most importantly, the effective termination of discrimination based on ascriptive attributes, for example through a less individualized (firm-based) and more collective recruitment system. While these measures may primarily fall into the jurisdiction of governments, companies can do their part at least by paying for these measures with parts of their profits. Second, the primary focus on educational attainment and the expansion of education alone does not effectively change the level of social fluidity. What logically follows is that linking life chances to one's work, hence to educational attainment and directly and indirectly to social origins, is deeply unfair and should be overcome.

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15 Online appendix

15.1 The differential treatment of self-employed in the IPICS scheme

As stated in Ch. 6, individuals are assigned to the highest IPICS classes (managers and administrators and professionals) independent of their employment status, i.e., whether they are employees or self-employed. Arguably, this choice artificially increases heterogeneity within the highest class positions and biases social mobility processes. Whether the differential treatment of self-employment affects our results can be studied tentatively by investigating resource differences between self-employed and employees within occupational classes. The underlying logic is that in so far as resources are significant causes for mobility strategies, substantial differences between the incomes of self-employed and employed class incumbents may warrant the creation of a separate class position.

Table A. 1 presents for each occupational class the percentage of self-employed and the percentage difference between the monthly average net income of self-employed and employed men and women. We observe that in nearly all classes the income difference between self-employed and salaried workers is quite high, which generally warrants a separate class assignment. The exception in both countries are managers and administrators, whose incomes are lower on average in Germany and among American women. Among American men they are only moderately higher as compared to salaried managers. In fact, self-employed managers are also in this sample rarely CEOs of large companies, but rather small hotel managers or shop owners (Erikson & Goldthorpe, 1992).[75]

[75] In the EGP scheme, self-employed professionals and managers are similarly assigned to class I instead of class IVab.

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Table A. 1: Self-employed incomes in the U.S. and Germany

	IPICS Class	Germany Men % SE	Germany Men $øI_{SE}/øI_E$	Germany Women % SE	Germany Women $øI_{SE}/øI_E$	United States Men % SE	United States Men $øI_{SE}/øI_E$	United States Women % SE	United States Women $øI_{SE}/øI_E$
I	Managers & Adm.	40.7	90.0	46.5	84.8	27.8	108.5	14.4	90.1
I	Clerks & Officers	*1.0*	*118.4*	0.9	*192.9*	3.7	166.0	3.3	98.6
I	Skilled Manual W.	4.6	143.8	5.5	*100.7*	13.4	90.6	9.8	82.4
I	Unskilled Manual W.	6.4	141.2	2.0	*95.7*	6.6	140.2	3.7	111.4
PI	Professionals	15.1	143.2	14.5	157.5	16.3	154.2	12.6	141.8
PI	Semi-Professionals	22.1	139.0	7.0	116.0	16.7	123.1	9.0	102.7
PI	Skilled Service W.	7.9	139.9	6.3	177.8	15.1	124.1	8.9	169.2
PI	Unskilled Service W.	14.5	144.5	6.0	164.7	9.0	151.4	12.5	121.9
	Overall average	10.3	~	6.9	~	13.9	~	8.9	~
	Observations (N)	11,739	~	8,135	~	13,595	~	13,131	~

Note: Pooled samples from Allbus 2000-2010 & GSS 2000-2010. Individuals aged 18-64 full-time employed with complete income data at the time of the interview. Income presented in constant Dollars or Euros. E = Employee; $øI_E$ = mean income of employed within that class; SE = self-employed; $øI_{SE}$ = average income of self-employed within that class. Italics denote less than 30 observations.

Leaving out cases in which cell counts are too low to interpret the raw averages, skilled manual workers in the U.S. and female clerks and officers are the only classes in which incumbents earn less if they are self-employed. In both countries, the wage gains for self-employed skilled servants are highest. Thus, the middle and lower classes are comprised of occupations in which self-employment can make a bigger difference with regards to inheritance of assets and resource endowment. In the top classes, however, differences are frequently marginal. Yet even where differences are high, i.e., between self-employed and salaried professionals, the relative abundance of economic resources is surely less consequential with regards to mobility strategies because of the lower relative costs and the diminishing marginal return of economic investments.[76] By excluding the self-employed from the middle classes, we obtain more homogeneous employee classes at the expense of creating a heterogeneous class of self-employed primarily characterized by business ownership.

[76] Notably, self-employed do significantly differ from employed managers and professionals with regards to wealth. However, this difference is insignificant compared to the relative costs of educational attainment or other means of social reproduction except in case of the inheritance of a business.

15.2 Weighting of the American data

In order to account for the oversampling of African-American respondents, we repeated all analyses employing frequency weights establishing the national race and gender distribution. To do so, a simple frequency weight was devised based on the factual distribution of the 30- to 64-year-old working population in the respective cohort. The necessary population counts are taken from the March Current Population Survey (CPS), a monthly nationally representative household survey of the civilian non-institutionalized population administered jointly by the U.S. Census Bureau and the Bureau of Labor Statistics, which was accessed via IPUMS (King et al., 2010). The weights are calculated by the following formula:

$$(w_{rgc} \mid E_c, A_c) = \frac{P(r, g, c \mid E_c, A_c)}{S(r, g, c \mid E_c, A_c)} * \frac{1}{N_Y} \sum_{y=1}^{45} Y_{y \mid c})$$

w_{rgc} represents the frequency weight for individuals of ancestry r $(black, white, hispanic)$[77] and gender g $(men, women)$ in cohort c $(1 \dots 7)$ conditional on being employed (E_C) and between 30 and 64 years old (A_C). The weight equals the quotient of the U.S. population of a given gender and ancestry and cohort $(P(r, g, c \mid E_c, A_c))$ divided by the sample count for the respective group $(S(r, g, c \mid E_c, A_c))$. The weights are finally divided through the average amount of years in which a cohort has been observed in order to account for the different observation spans given the age restriction and the several decades long observation window. Employing the weights in tables which are collapsed over race, therefore, reproduces the exact race distribution as can be observed in a comparable sample of CPS March data. Applying the weights to the analyses of this chapter, we find that the results do not differ substantially between weighted and unweighted samples. Results can be obtained from the author.

[77] Information on Hispanic ethnicity was only collected after 1971. To remedy this shortcoming without ignoring the Hispanics in the first years, population weights from 1971 are carried back to 1968. The bias introduced through this is negligible given that the Southern and Midwestern American population was still comparatively small in the 1960s. However, because the number of Hispanics is also small in our samples, individual observations are assigned uncomfortably large weights.

Table A. 2: Row-% in the ODC table, German men

		Destination										
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR	Total
1915-1924	M&A	47.3	5.5	3.6	1.8	21.8	3.6	9.1	1.8	3.6	1.8	100.0
	C&O	13.6	18.5	20.4	4.9	17.3	9.9	9.3	1.9	4.3	0.0	100.0
	SMW	12.6	11.4	42.2	8.7	5.4	4.5	6.5	3.1	5.6	0.0	100.0
	UMW	4.1	18.9	33.8	18.0	4.1	3.6	5.4	7.2	3.6	1.4	100.0
	PFS	16.3	9.3	14.0	4.7	46.5	2.3	2.3	0.0	4.7	0.0	100.0
	SPF	25.0	15.6	6.3	3.1	6.3	25.0	0.0	3.1	15.6	0.0	100.0
	SSW	9.4	17.2	42.2	6.3	10.9	1.6	6.3	1.6	4.7	0.0	100.0
	USW	10.3	22.4	31.0	6.9	1.7	3.4	6.9	10.3	6.9	0.0	100.0
	PeB	0.0	21.2	22.7	9.4	0.0	7.1	9.4	6.3	23.9	0.0	100.0
	FAR	8.1	12.0	25.7	15.1	4.9	2.8	4.9	3.2	6.3	16.9	100.0
1925-1934	M&A	37.1	10.5	15.4	5.6	22.4	2.8	2.1	0.0	3.5	0.7	100.0
	C&O	13.1	21.7	21.4	3.5	19.2	8.6	7.3	1.6	3.5	0.0	100.0
	SMW	6.2	10.5	43.1	9.5	8.7	4.2	8.1	4.4	4.7	0.7	100.0
	UMW	4.1	11.4	34.2	26.4	5.2	2.2	4.7	7.6	2.2	1.9	100.0
	PFS	14.6	10.6	5.7	0.0	46.3	9.8	7.3	1.6	3.3	0.8	100.0
	SPF	19.5	12.6	10.3	3.4	26.4	13.8	8.0	3.4	2.3	0.0	100.0
	SSW	11.3	14.0	23.3	10.0	11.3	6.0	13.3	5.3	4.7	0.7	100.0
	USW	6.7	9.4	28.2	22.8	6.0	5.4	12.8	5.4	3.4	0.0	100.0
	PeB	0.2	16.1	33.1	9.1	0.2	5.1	7.1	7.9	21.2	0.0	100.0
	FAR	4.5	10.8	27.2	17.4	5.9	1.7	3.8	5.8	3.7	19.1	100.0
1935-1944	M&A	35.1	5.5	10.6	2.9	33.0	3.4	3.4	1.7	3.4	0.9	100.0
	C&O	10.6	14.9	20.5	3.3	25.0	9.4	7.2	4.0	4.9	0.1	100.0
	SMW	8.4	10.3	42.3	8.9	10.7	3.4	7.4	4.4	3.8	0.3	100.0
	UMW	5.9	7.9	36.1	25.4	5.9	1.7	7.5	6.5	2.6	0.7	100.0
	PFS	13.7	5.9	8.7	2.1	51.5	9.2	4.6	1.1	3.2	0.0	100.0
	SPF	13.9	10.5	13.1	2.1	30.8	15.2	5.1	3.0	6.3	0.0	100.0
	SSW	9.8	10.1	29.1	5.2	14.7	5.4	16.6	4.3	4.6	0.3	100.0
	USW	7.7	7.7	36.3	16.3	8.0	2.0	9.0	9.7	3.3	0.0	100.0
	PeB	0.0	15.3	30.6	9.7	0.4	5.1	10.3	6.9	21.7	0.0	100.0
	FAR	5.4	9.5	29.3	17.5	7.4	2.7	4.9	6.7	2.5	14.0	100.0
1945-1954	M&A	28.5	7.4	11.5	2.7	33.5	5.6	5.6	1.1	2.9	1.3	100.0
	C&O	11.2	18.0	18.7	3.9	25.3	8.2	6.6	3.1	4.9	0.2	100.0
	SMW	8.7	9.1	37.5	8.6	12.4	5.1	8.6	4.7	5.1	0.2	100.0
	UMW	7.1	8.6	34.1	20.2	8.1	3.9	7.0	7.0	3.1	0.9	100.0
	PFS	10.1	7.2	10.7	4.4	43.8	9.8	6.0	2.8	5.0	0.3	100.0
	SPF	15.4	8.2	16.3	3.6	29.7	13.4	4.2	1.6	6.9	0.7	100.0
	SSW	9.9	9.7	25.5	8.3	14.6	6.1	14.4	4.7	6.3	0.6	100.0
	USW	7.3	8.6	29.9	18.6	12.0	3.9	9.5	7.3	2.7	0.2	100.0
	PeB	0.1	17.6	28.1	7.1	0.0	8.6	11.2	6.9	20.3	0.1	100.0
	FAR	6.5	8.0	28.8	14.7	9.0	4.3	7.8	4.6	4.9	11.4	100.0

		Destination (continuation of Table A. 2)										
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR	Total
1955-1964	M&A	24.2	8.7	14.8	3.0	29.2	5.9	7.2	1.8	4.3	0.9	100.0
	C&O	10.5	16.4	20.2	3.2	21.9	9.3	9.3	4.1	4.8	0.3	100.0
	SMW	7.5	8.8	37.7	9.1	12.0	4.9	9.3	5.2	5.1	0.2	100.0
	UMW	5.4	8.7	33.2	20.6	8.3	3.4	8.0	7.1	4.6	0.6	100.0
	PFS	10.9	6.4	12.9	3.9	40.1	10.2	7.3	3.1	5.2	0.0	100.0
	SPF	12.9	13.5	14.4	6.0	25.6	11.2	6.9	4.0	4.9	0.6	100.0
	SSW	9.9	6.8	34.7	6.0	9.8	4.8	16.2	5.6	6.1	0.2	100.0
	USW	8.3	6.8	31.0	17.2	9.6	4.1	10.5	9.0	3.5	0.0	100.0
	PeB	0.2	13.3	30.4	10.5	0.0	7.4	12.4	6.4	19.4	0.2	100.0
	FAR	5.4	8.2	27.1	16.3	9.2	4.1	7.9	5.1	4.2	12.5	100.0
1965-1974	M&A	30.7	9.3	14.1	4.5	25.6	4.8	3.5	1.6	5.4	0.6	100.0
	C&O	7.7	16.4	24.5	4.7	20.8	5.8	8.4	2.9	8.7	0.0	100.0
	SMW	8.0	7.6	36.9	10.6	12.0	5.0	8.5	5.5	5.5	0.3	100.0
	UMW	6.2	7.5	31.2	22.4	8.1	3.0	7.6	10.2	2.9	1.0	100.0
	PFS	9.5	8.6	12.1	3.9	36.4	12.1	5.7	4.2	7.5	0.0	100.0
	SPF	14.7	9.6	11.9	4.6	20.6	17.9	6.9	3.7	10.1	0.0	100.0
	SSW	8.6	12.1	27.1	9.1	13.0	5.0	15.6	4.1	5.0	0.3	100.0
	USW	7.4	6.5	21.4	21.9	12.6	4.2	11.2	10.7	4.2	0.0	100.0
	PeB	0.0	11.5	25.4	10.8	0.6	8.0	10.8	10.8	22.0	0.0	100.0
	FAR	7.6	6.9	26.2	15.9	8.3	2.8	8.6	4.8	7.6	11.4	100.0
1975-1984	M&A	12.4	4.5	18.0	6.7	30.3	10.1	6.7	5.6	5.6	0.0	100.0
	C&O	4.6	16.7	13.0	9.3	28.7	12.0	8.3	5.6	1.9	0.0	100.0
	SMW	4.4	10.9	33.9	11.7	14.2	5.3	8.2	6.3	4.8	0.3	100.0
	UMW	5.0	6.9	31.9	20.3	7.2	4.7	9.1	11.3	3.1	0.6	100.0
	PFS	5.5	8.6	12.7	2.7	46.0	8.2	3.8	6.2	6.2	0.0	100.0
	SPF	10.9	14.5	16.4	6.4	22.7	13.6	6.4	3.6	5.5	0.0	100.0
	SSW	7.6	11.4	20.0	11.4	19.0	5.7	10.5	6.7	6.7	1.0	100.0
	USW	7.6	13.6	19.7	13.6	16.7	7.6	7.6	10.6	3.0	0.0	100.0
	PeB	0.0	13.8	26.6	10.1	0.0	12.8	15.6	9.2	11.9	0.0	100.0
	FAR	2.9	4.3	25.7	25.7	11.4	4.3	7.1	10.0	0.0	8.6	100.0

Table A. 3: Row-% in the ODC table, German women

		Destination										
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR	Total
1915-1924	M&A	23.8	34.9	1.6	0.0	7.9	14.3	9.5	4.8	0.0	3.2	100.0
	C&O	3.6	46.8	0.7	13.7	0.7	12.2	1.4	17.3	2.9	0.7	100.0
	SMW	7.4	32.0	4.5	12.7	0.6	9.1	4.5	25.8	2.3	1.1	100.0
	UMW	6.7	23.6	3.4	19.1	1.1	6.7	3.9	30.9	2.2	2.2	100.0
	PFS	2.4	43.9	2.4	0.0	14.6	26.8	4.9	4.9	0.0	0.0	100.0
	SPF	4.7	44.2	2.3	2.3	11.6	23.3	2.3	9.3	0.0	0.0	100.0
	SSW	5.3	42.1	2.6	11.8	1.3	10.5	2.6	22.4	1.3	0.0	100.0
	USW	3.4	22.0	6.8	11.9	0.0	6.8	8.5	35.6	3.4	1.7	100.0
	PeB	0.0	40.9	3.6	13.1	0.0	10.2	5.8	19.0	6.6	0.7	100.0
	FAR	4.0	15.9	0.4	15.5	2.0	6.4	2.0	25.9	2.0	25.9	100.0
1925-1934	M&A	29.2	23.6	4.2	2.8	12.5	15.3	8.3	1.4	1.4	1.4	100.0
	C&O	6.1	36.4	1.8	9.1	4.8	15.2	4.8	16.4	5.5	0.0	100.0
	SMW	6.3	24.6	5.8	16.5	1.6	5.6	4.7	31.1	2.9	0.9	100.0
	UMW	3.8	16.6	5.0	26.6	1.2	4.7	2.4	34.9	1.2	3.6	100.0
	PFS	4.1	23.0	2.7	10.8	14.9	25.7	9.5	5.4	4.1	0.0	100.0
	SPF	11.6	11.6	0.0	4.7	16.3	32.6	7.0	14.0	2.3	0.0	100.0
	SSW	6.3	25.3	2.5	13.9	2.5	12.7	8.9	22.8	3.8	1.3	100.0
	USW	8.3	15.5	6.0	20.2	1.2	13.1	6.0	26.2	2.4	1.2	100.0
	PeB	0.0	31.3	4.4	10.4	0.3	14.6	7.3	22.2	8.2	1.3	100.0
	FAR	5.1	14.1	4.1	20.5	2.3	5.1	1.3	22.8	1.3	23.3	100.0
1935-1944	M&A	22.2	22.7	3.9	1.0	22.7	17.9	3.9	3.4	1.4	1.0	100.0
	C&O	6.5	38.4	4.5	5.2	7.7	17.2	5.0	12.2	3.2	0.2	100.0
	SMW	4.3	28.7	5.3	11.6	3.7	10.0	7.1	26.5	2.4	0.4	100.0
	UMW	5.1	24.2	4.7	18.8	3.0	7.1	5.7	28.2	1.4	1.8	100.0
	PFS	4.2	17.2	4.6	2.1	30.9	25.6	6.7	6.3	2.5	0.0	100.0
	SPF	8.4	28.7	3.5	3.5	15.4	27.3	3.5	5.6	4.2	0.0	100.0
	SSW	4.1	28.9	6.0	9.6	4.1	11.9	8.7	24.8	1.8	0.0	100.0
	USW	3.3	28.0	6.0	15.4	2.7	11.5	4.4	27.5	1.1	0.0	100.0
	PeB	0.3	36.4	4.1	11.3	0.2	12.7	8.0	19.5	6.8	0.8	100.0
	FAR	6.7	19.6	3.6	16.5	2.6	8.1	6.7	24.6	1.5	10.1	100.0
1945-1954	M&A	17.8	20.3	4.6	0.5	24.3	15.1	7.6	4.1	5.4	0.3	100.0
	C&O	6.3	33.4	3.7	4.4	12.4	18.0	7.6	11.1	3.1	0.0	100.0
	SMW	4.8	27.5	5.5	8.2	6.3	12.7	10.8	20.5	3.5	0.2	100.0
	UMW	2.9	23.4	5.6	16.2	4.0	7.9	9.6	26.7	2.9	0.8	100.0
	PFS	4.6	21.4	3.2	1.9	32.0	21.9	6.4	4.9	3.7	0.0	100.0
	SPF	3.1	20.8	1.3	3.1	26.1	25.7	5.3	8.8	5.3	0.4	100.0
	SSW	5.3	27.9	5.7	6.0	7.6	15.3	11.2	16.9	4.1	0.0	100.0
	USW	6.0	23.9	3.3	9.4	6.3	13.3	8.8	26.9	2.1	0.0	100.0
	PeB	0.0	33.1	4.0	6.3	0.0	17.8	14.4	16.0	8.2	0.1	100.0
	FAR	4.7	23.1	4.0	13.1	6.0	12.2	9.2	20.9	2.8	4.0	100.0

		Destination (continuation of Table A. 3)										
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR	Total
1955-1964	M&A	13.9	17.0	3.6	0.7	21.6	22.3	10.0	4.1	6.8	0.0	100.0
	C&O	3.4	33.5	3.5	4.1	13.4	18.0	10.1	10.8	3.0	0.1	100.0
	SMW	3.6	26.9	5.4	6.9	6.8	14.7	12.8	19.0	3.6	0.3	100.0
	UMW	2.9	22.4	5.0	11.1	4.7	9.7	12.9	27.7	3.0	0.6	100.0
	PFS	4.2	19.7	3.8	3.3	30.3	21.8	7.1	5.0	4.8	0.0	100.0
	SPF	6.8	19.2	4.0	3.1	20.9	28.2	7.6	5.1	5.1	0.0	100.0
	SSW	6.0	28.8	4.9	5.8	6.7	16.2	12.7	15.3	3.7	0.0	100.0
	USW	4.0	22.4	6.1	7.5	8.5	16.0	9.1	21.6	4.8	0.0	100.0
	PeB	0.0	30.8	5.9	4.8	0.0	20.1	15.4	15.1	7.8	0.0	100.0
	FAR	4.1	24.8	3.3	9.6	8.9	15.8	10.2	16.4	3.0	3.8	100.0
1965-1974	M&A	12.4	20.8	0.9	0.9	25.2	23.0	9.3	3.5	3.1	0.9	100.0
	C&O	6.3	34.5	3.3	2.7	11.4	14.4	9.5	12.5	5.4	0.0	100.0
	SMW	3.3	26.8	5.4	5.6	8.5	13.8	13.3	18.9	4.4	0.1	100.0
	UMW	2.7	18.3	3.0	12.3	5.0	11.4	12.7	29.9	4.5	0.2	100.0
	PFS	4.9	17.9	4.4	2.8	30.4	20.0	9.3	4.7	5.7	0.2	100.0
	SPF	6.8	19.0	2.9	2.0	17.1	21.0	15.1	10.2	5.4	0.5	100.0
	SSW	3.2	25.3	3.5	4.7	7.4	15.6	16.8	18.2	5.3	0.0	100.0
	USW	3.3	22.7	5.0	7.7	5.5	13.8	13.3	25.4	3.3	0.0	100.0
	PeB	0.0	35.2	6.2	3.0	0.0	16.0	15.4	15.7	8.4	0.0	100.0
	FAR	1.8	21.1	6.4	11.0	9.2	13.3	10.1	21.1	0.9	5.0	100.0
1975-1984	M&A	8.5	16.9	4.2	2.8	25.4	16.9	9.9	8.5	7.0	0.0	100.0
	C&O	3.0	25.0	1.0	1.0	23.0	16.0	10.0	14.0	7.0	0.0	100.0
	SMW	4.3	17.8	2.3	5.8	12.4	16.8	15.8	20.1	4.8	0.0	100.0
	UMW	3.7	18.1	3.0	10.4	6.7	9.7	13.1	33.2	1.7	0.3	100.0
	PFS	2.4	12.0	3.2	2.0	35.2	20.4	11.6	10.0	3.2	0.0	100.0
	SPF	5.7	12.5	0.0	2.3	37.5	18.2	11.4	5.7	6.8	0.0	100.0
	SSW	0.0	23.4	2.1	0.0	18.1	13.8	19.1	20.2	3.2	0.0	100.0
	USW	4.1	13.7	0.0	8.2	9.6	15.1	13.7	34.2	1.4	0.0	100.0
	PeB	0.7	22.2	6.7	6.7	0.7	13.3	23.7	17.8	8.1	0.0	100.0
	FAR	4.8	12.7	4.8	7.9	12.7	6.3	12.7	34.9	3.2	0.0	100.0

Table A. 4: Row-% in the ODC table, Amercian men

		Destination										
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR	Total
1915-1924	M&A	25.3	5.5	11.3	3.4	12.4	17.2	2.9	8.7	12.9	0.3	100.0
	C&O	16.7	12.4	18.3	10.2	8.4	12.1	5.3	9.0	7.1	0.6	100.0
	SMW	11.0	8.2	26.6	15.3	5.1	9.1	5.7	10.4	7.3	1.2	100.0
	UMW	6.0	6.2	23.1	28.3	2.4	5.1	6.6	15.0	5.0	2.3	100.0
	PFS	18.4	6.5	13.5	4.9	24.9	17.3	3.2	3.2	7.6	0.5	100.0
	SPF	21.1	5.4	10.9	7.7	13.4	19.1	3.1	6.9	10.3	2.0	100.0
	SSW	11.0	8.2	23.4	12.5	7.7	9.7	8.0	12.7	6.5	0.4	100.0
	USW	11.2	9.4	18.5	17.4	5.6	11.0	5.5	14.8	6.2	0.6	100.0
	PeB	16.5	6.4	17.6	7.9	7.9	12.9	4.0	9.0	16.1	1.8	100.0
	FAR	6.4	3.9	20.8	24.5	1.9	5.0	5.4	12.4	5.8	13.9	100.0
1925-1934	M&A	27.4	5.0	10.6	6.6	12.2	16.1	5.4	5.9	10.0	0.9	100.0
	C&O	18.1	7.9	19.4	7.2	11.3	14.5	7.2	7.0	6.6	0.6	100.0
	SMW	11.5	6.0	26.4	14.6	7.6	10.1	7.5	8.7	7.0	0.5	100.0
	UMW	7.3	6.3	24.2	25.9	3.9	6.9	7.7	11.1	5.8	0.9	100.0
	PFS	17.5	8.0	12.0	5.8	20.9	15.3	6.1	2.8	11.3	0.3	100.0
	SPF	18.1	3.9	13.1	7.3	12.5	23.9	7.1	5.2	8.8	0.0	100.0
	SSW	13.1	7.7	18.4	10.5	7.6	9.8	12.1	9.0	11.5	0.4	100.0
	USW	11.5	8.1	16.6	16.8	6.0	11.4	9.1	13.9	6.5	0.2	100.0
	PeB	17.4	4.8	15.6	8.5	10.4	15.6	5.1	5.4	16.5	0.9	100.0
	FAR	6.6	3.5	22.8	25.2	2.7	5.7	6.8	9.6	7.3	9.6	100.0
1935-1944	M&A	16.7	12.4	18.3	10.2	8.4	12.1	5.3	9.0	7.1	0.6	100.0
	C&O	11.0	8.2	26.6	15.3	5.1	9.1	5.7	10.4	7.3	1.2	100.0
	SMW	6.0	6.2	23.1	28.3	2.4	5.1	6.6	15.0	5.0	2.3	100.0
	UMW	18.4	6.5	13.5	4.9	24.9	17.3	3.2	3.2	7.6	0.5	100.0
	PFS	21.1	5.4	10.9	7.7	13.4	19.1	3.1	6.9	10.3	2.0	100.0
	SPF	11.0	8.2	23.4	12.5	7.7	9.7	8.0	12.7	6.5	0.4	100.0
	SSW	11.2	9.4	18.5	17.4	5.6	11.0	5.5	14.8	6.2	0.6	100.0
	USW	16.5	6.4	17.6	7.9	7.9	12.9	4.0	9.0	16.1	1.8	100.0
	PeB	6.4	3.9	20.8	24.5	1.9	5.0	5.4	12.4	5.8	13.9	100.0
	FAR	10.0	6.3	21.2	19.6	4.8	8.2	5.6	12.0	7.2	5.2	100.0
1945-1954	M&A	11.1	5.7	21.5	18.2	6.5	9.8	7.5	9.2	8.0	2.7	100.0
	C&O	22.8	3.2	13.0	7.6	13.7	16.5	7.6	7.5	7.9	0.1	100.0
	SMW	14.8	8.3	16.3	10.5	13.9	12.7	9.1	7.0	6.7	0.7	100.0
	UMW	8.9	5.5	27.9	15.4	7.2	11.5	9.1	7.1	6.7	0.7	100.0
	PFS	6.5	5.3	22.6	29.7	4.9	7.5	9.0	8.9	5.0	0.6	100.0
	SPF	14.6	3.8	11.3	4.6	25.2	17.1	5.8	4.8	12.5	0.3	100.0
	SSW	15.9	4.5	11.5	8.0	12.8	20.4	8.8	5.3	12.6	0.3	100.0
	USW	13.8	5.7	15.4	12.8	8.6	12.6	14.3	7.6	8.9	0.3	100.0
	PeB	11.7	6.4	16.2	16.7	7.8	12.8	9.6	10.7	7.8	0.2	100.0
	FAR	16.0	4.2	13.6	9.3	12.8	15.1	5.7	7.1	15.7	0.6	100.0

		Destination (continuation of Table A. 4)										
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR	Total
1955-1964	M&A	10.5	5.0	20.2	18.9	8.2	11.2	8.6	8.0	7.7	1.8	100.0
	C&O	25.7	3.4	12.2	8.0	12.9	14.4	8.0	5.9	9.5	0.0	100.0
	SMW	10.9	10.3	12.4	12.4	13.5	10.7	12.9	8.6	7.3	0.9	100.0
	UMW	8.3	5.5	26.1	15.9	6.5	11.2	11.5	7.3	7.5	0.3	100.0
	PFS	6.5	5.3	23.4	27.5	3.9	7.0	9.9	10.0	5.9	0.7	100.0
	SPF	14.4	6.4	11.2	6.8	19.7	14.1	8.8	5.6	12.7	0.1	100.0
	SSW	13.3	3.5	12.9	6.7	13.2	21.2	11.4	6.3	10.8	0.7	100.0
	USW	10.4	5.9	20.1	12.0	7.6	11.7	15.2	8.6	8.5	0.0	100.0
	PeB	10.4	6.6	18.3	18.0	6.3	9.5	10.3	13.4	6.9	0.3	100.0
	FAR	8.6	4.1	18.1	7.0	10.4	16.2	8.9	5.9	20.5	0.4	100.0
1965-1974	M&A	9.6	5.3	20.3	17.0	7.9	11.0	10.6	8.4	8.9	1.2	100.0
	C&O	22.3	5.5	13.2	10.1	13.4	14.0	8.3	7.5	5.1	0.4	100.0
	SMW	8.3	6.8	19.4	14.8	6.6	12.5	14.5	8.5	8.0	0.6	100.0
	UMW	8.3	4.4	28.3	19.2	6.5	7.6	10.4	10.2	4.7	0.4	100.0
	PFS	5.1	4.1	21.7	31.8	3.3	6.3	11.7	11.0	4.7	0.3	100.0
	SPF	12.8	6.3	13.9	7.5	20.6	14.3	9.2	5.8	8.9	0.6	100.0
	SSW	12.0	3.7	15.2	9.3	11.2	20.4	12.8	7.9	6.6	1.0	100.0
	USW	8.6	4.5	19.9	14.7	6.9	12.1	15.9	11.2	6.0	0.2	100.0
	PeB	6.3	8.4	21.8	16.5	4.9	7.8	12.8	15.1	6.0	0.5	100.0
	FAR	9.3	4.7	19.2	10.7	11.2	13.7	8.6	6.3	15.3	0.9	100.0
1975-1984	M&A	8.7	4.8	20.8	19.2	7.7	10.0	11.2	9.9	6.5	1.1	100.0
	C&O	18.0	4.9	13.7	9.8	16.9	19.1	7.7	5.5	3.8	0.5	100.0
	SMW	11.1	6.0	13.7	13.7	11.1	14.5	13.7	14.5	1.7	0.0	100.0
	UMW	6.0	4.4	25.8	18.1	5.8	9.9	14.8	10.7	4.4	0.3	100.0
	PFS	5.5	6.3	21.1	27.5	3.6	8.6	10.9	12.3	3.7	0.5	100.0
	SPF	14.6	6.3	11.3	5.1	20.9	17.0	9.9	7.2	7.8	0.0	100.0
	SSW	12.1	4.7	15.3	8.1	10.0	19.3	11.8	10.3	8.4	0.0	100.0
	USW	8.7	5.0	12.9	13.2	7.2	17.4	18.4	12.2	4.7	0.2	100.0
	PeB	5.5	5.2	16.3	18.9	4.2	11.7	15.6	18.9	3.6	0.0	100.0
	FAR	10.3	4.6	21.1	12.4	6.2	12.9	9.8	6.2	16.0	0.5	100.0

Table A. 5: Row-% in the ODC table, American women

		Destination										
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR	Total
1915-1924	M&A	10.1	31.9	2.9	4.3	1.4	23.2	1.4	18.8	5.8	0.0	100.0
	C&O	6.2	32.1	4.9	6.2	1.2	16.0	2.5	25.9	4.9	0.0	100.0
	SMW	5.0	30.2	3.7	9.7	0.6	10.1	4.5	30.8	5.4	0.0	100.0
	UMW	3.4	16.6	3.9	18.5	0.8	4.2	7.0	39.7	5.8	0.0	100.0
	PFS	9.1	34.5	1.8	3.6	3.6	25.5	0.0	18.2	3.6	0.0	100.0
	SPF	15.2	32.3	2.0	5.1	3.0	18.2	4.0	18.2	2.0	0.0	100.0
	SSW	5.5	24.4	3.7	14.0	1.2	13.4	3.7	29.9	3.7	0.6	100.0
	USW	5.3	25.7	5.3	11.2	0.7	9.9	5.9	34.2	2.0	0.0	100.0
	PeB	7.1	42.4	2.2	6.0	3.8	10.9	1.6	20.1	4.9	1.1	100.0
	FAR	3.4	12.2	3.5	17.3	0.8	10.2	6.7	41.5	3.5	0.8	100.0
1925-1934	M&A	5.0	22.3	3.6	13.5	1.2	10.2	5.3	34.2	4.4	0.4	100.0
	C&O	9.1	38.4	0.6	1.8	2.4	22.0	4.3	17.7	3.7	0.0	100.0
	SMW	5.2	35.6	2.3	6.3	2.9	19.5	5.7	18.4	3.4	0.6	100.0
	UMW	4.7	31.7	3.1	8.8	2.2	15.0	6.2	24.2	4.0	0.2	100.0
	PFS	3.6	21.3	2.9	14.9	1.5	9.8	6.3	35.2	4.4	0.2	100.0
	SPF	11.4	27.7	1.2	2.4	7.2	22.9	8.4	13.9	4.8	0.0	100.0
	SSW	6.9	25.9	1.3	7.3	5.6	24.1	4.7	18.5	5.6	0.0	100.0
	USW	5.8	31.1	3.3	4.6	3.0	19.2	5.6	22.8	4.6	0.0	100.0
	PeB	5.2	26.1	2.6	10.3	1.7	12.4	8.0	26.7	6.6	0.3	100.0
	FAR	7.2	26.2	3.7	6.9	5.0	25.2	5.6	14.6	5.6	0.0	100.0
1935-1944	M&A	4.3	16.9	3.5	16.2	1.8	9.9	6.6	34.0	5.4	1.4	100.0
	C&O	5.1	25.1	2.9	11.0	2.5	14.4	6.3	27.5	4.8	0.4	100.0
	SMW	13.9	31.6	2.2	2.8	4.4	23.7	4.1	11.7	5.1	0.3	100.0
	UMW	5.5	25.0	2.1	5.9	5.1	24.2	5.9	21.2	4.7	0.4	100.0
	PFS	6.7	27.9	3.5	9.7	2.5	14.5	6.6	21.4	6.9	0.2	100.0
	SPF	4.7	23.2	4.0	13.9	1.2	12.6	7.5	27.6	4.9	0.4	100.0
	SSW	10.3	21.6	1.8	3.7	6.6	34.0	5.0	10.8	5.8	0.3	100.0
	USW	6.1	28.0	1.2	3.3	3.5	32.9	5.8	13.8	5.4	0.2	100.0
	PeB	8.0	27.1	3.4	5.4	3.2	20.8	6.7	19.0	6.6	0.0	100.0
	FAR	6.8	27.0	2.3	9.3	2.0	18.2	4.8	27.7	1.8	0.0	100.0
1945-1954	M&A	4.2	29.9	2.0	3.2	6.6	23.5	5.0	15.9	9.4	0.4	100.0
	C&O	4.5	20.8	4.2	16.6	1.6	12.2	6.6	27.1	5.4	1.0	100.0
	SMW	6.2	25.4	3.2	10.0	2.7	17.6	6.4	22.4	5.7	0.4	100.0
	UMW	15.6	22.7	2.5	1.6	8.2	24.9	7.6	13.1	3.8	0.0	100.0
	PFS	8.4	27.1	2.4	5.1	4.1	24.8	6.3	17.5	4.1	0.2	100.0
	SPF	8.3	25.9	3.6	7.0	3.8	18.8	6.7	21.4	4.4	0.1	100.0
	SSW	5.0	23.8	3.8	13.1	2.6	13.8	7.8	25.3	4.7	0.1	100.0
	USW	12.5	18.8	2.7	2.4	10.2	32.3	6.1	9.0	6.1	0.1	100.0
	PeB	8.6	24.1	1.5	2.6	7.0	30.5	6.0	14.3	5.3	0.1	100.0
	FAR	7.0	25.5	2.7	5.1	4.9	24.1	7.3	17.9	5.5	0.0	100.0

		Destination (continuation of Table A. 5)										
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW	PeB	FAR	Total
1955-1964	M&A	13.9	23.1	2.2	4.3	7.8	25.7	6.5	12.9	3.7	0.0	100.0
	C&O	6.9	22.8	1.1	8.5	7.2	19.4	10.3	19.9	4.0	0.0	100.0
	SMW	7.5	25.0	2.5	8.5	3.7	17.4	7.4	23.1	4.9	0.1	100.0
	UMW	5.4	20.7	3.3	11.9	2.1	12.9	7.9	31.9	3.7	0.2	100.0
	PFS	11.5	20.1	1.6	2.1	12.6	30.4	6.5	11.3	3.8	0.0	100.0
	SPF	10.1	22.4	2.2	1.8	8.6	26.5	6.2	17.5	4.4	0.3	100.0
	SSW	7.0	23.3	3.2	6.5	4.5	20.2	8.6	22.5	3.8	0.4	100.0
	USW	5.6	24.5	4.5	7.7	2.9	13.7	8.6	27.7	4.8	0.1	100.0
	PeB	6.3	20.4	4.9	4.2	7.6	25.7	7.6	15.0	8.3	0.0	100.0
	FAR	5.4	19.6	3.2	14.1	4.4	14.8	6.3	24.8	6.3	1.0	100.0
1965-1974	M&A	14.1	25.2	1.5	2.9	5.8	29.1	4.9	13.6	2.9	0.0	100.0
	C&O	10.2	16.7	3.7	2.8	4.6	36.1	7.4	16.7	1.9	0.0	100.0
	SMW	7.4	21.2	2.7	6.4	4.4	17.3	8.1	26.4	6.1	0.0	100.0
	UMW	4.8	20.8	2.3	8.6	2.2	15.8	10.0	30.8	4.5	0.2	100.0
	PFS	7.4	13.9	2.4	1.8	14.8	35.5	8.9	9.8	5.6	0.0	100.0
	SPF	8.5	14.4	0.8	3.1	7.1	35.3	6.8	18.1	5.9	0.0	100.0
	SSW	7.2	21.4	2.8	2.2	3.9	21.9	9.7	23.9	6.7	0.3	100.0
	USW	4.3	23.2	1.5	6.8	3.8	12.4	11.9	30.1	6.1	0.0	100.0
	PeB	7.5	15.6	1.9	3.8	7.5	30.2	10.8	16.0	6.6	0.0	100.0
	FAR	5.4	14.6	5.4	13.2	4.4	18.5	5.4	26.3	4.9	2.0	100.0
1975-1984	M&A	9.4	18.8	1.0	0.0	7.3	34.4	11.5	17.7	0.0	0.0	100.0
	C&O	1.6	23.8	0.0	1.6	9.5	20.6	12.7	23.8	4.8	1.6	100.0
	SMW	4.5	18.4	2.4	4.8	3.8	23.0	13.4	26.6	3.1	0.0	100.0
	UMW	4.0	17.1	2.2	4.9	2.2	20.0	11.9	33.9	3.6	0.0	100.0
	PFS	13.0	14.2	0.6	0.0	12.4	37.9	4.7	13.0	4.1	0.0	100.0
	SPF	6.0	16.3	1.1	2.2	10.3	33.2	8.7	17.4	4.9	0.0	100.0
	SSW	7.3	17.3	3.1	1.6	8.9	23.6	11.5	23.6	3.1	0.0	100.0
	USW	7.6	17.1	3.0	4.2	3.0	17.9	12.9	30.0	4.2	0.0	100.0
	PeB	2.5	15.0	1.3	3.8	7.5	26.3	11.3	22.5	10.0	0.0	100.0
	FAR	2.2	15.2	4.3	13.0	0.0	15.2	10.9	32.6	6.5	0.0	100.0

15.3 Class and family

Following feminist critique from the 1970s onwards, Goldthorpe initiated a debate on the proper unit of class analysis which is in many ways critical for the study of social class mobility (Goldthorpe, 1983, 1984). The discussed problem is the following. Because class is usually derived on the basis of an individual's job, a family can easily comprise several such individual classes. Thus, it is neither empirically nor conceptually easy to establish a single social background which satisfactorily signifies the total resource endowments of individuals during their adolescence. While single mothers and fathers can be assigned to a class based on their individual job position, families pose the problem of whether one social class can be taken as a proxy for the market situation or if they need to be jointly considered. Goldthorpe's main argument is that families are units that pool their resources together and consume or invest their assets together. As such, a family shares one market situation. The disconcerting implication is that due to their inferior labor market positions, women usually derive their class position from men, or, stated less problematically, that all family members derive their class position from the one individual that participates most in the labor market and therefore dominates the market situation of the family (Erikson, 1984). This position was repeatedly attacked by other social scientists who claimed that married individuals are also affected by their individual class position (Heath & Britten, 1984; Stanworth, 1984; Sørensen, 1994; Wright, 1997). Nevertheless, either the conventional male-oriented approach or Erikson's dominance approach have been adopted in most studies of social mobility (Erikson & Goldthorpe, 1992; Breen, 2004a; Goldthorpe & Mills, 2008; Breen & Karlson, 2014; Hertel & Groh-Samberg, 2014).

Ignoring mother's, however, has been repeatedly shown to affect mobility results (Stevens & Boyd, 1980). In her study of social mobility trends in the United States, Beller recently showed that the joint consideration of parental classes significantly better describes the pattern of mobility chances than the father-only model (Beller, 2009, p. 518). More importantly, however, she found that social mobility trends differ if two instead of one parental class are used for assigning a social origin. While there is no trend in social mobility chances of Americans if only fathers' class is employed, a clear decrease of mobility chances (for sons) across cohorts is discernible if parents' classes are considered jointly (Beller, 2009, p. 523). Thus, class background should rather be conceived of as family basket full of maternal and paternal economic and cultural resources vital for offspring's mobility processes. The recent upswing in mobility chances, however, has also been found in analyses which employed a father-only design and trends were remarkably similar no matter what conceptualizations of parental origin were used (Pfeffer & Hertel, 2015). Moreover, Wright found that men's class is more important than women's class in accounting for the latter classes' identification.

While a joint consideration of mothers' and fathers' classes would be desirable, various surveys used in the following analysis did not gather information on mothers' (or cohabitating partners' or non-resident parents') occupations (Tach, 2015). Therefore, one has to draw back to the conventionalists' approach if the aim is to study social mobility across several cohorts. Keeping in mind Beller's contribution, this is problematic because trends in the origin-destination association could also represent the changing composition of parental backgrounds. This is because the father-child association includes the 'unmeasured association' between a mother and her child via the correlation between fathers' and mothers' class positions. The greater the change in the correlation of mothers' and fathers' class, given the association of both parents and their children, the more the calculated trend diverts from the real one. Increasing (educational) homogamy as well as a rise in early adulthood separation may increase the importance of mothers' resources, hence resulting in an underestimation of the association of parental and offspring class position if only fathers' class is accounted for (Blossfeld & Timm, 2003; Tach, 2015).

While the danger of an estimation error is real, it must be quantified in order to estimate its potential influence. An initial and rather simple empirical test can be derived on the basis of the idea that families are in a unitary market situation. The market situation is usually defined by the consumption and investment opportunities of the family. The conventional approach assumes that the class position of fathers adequately indicates consumption opportunities and economic prospects for the whole family. One simple way to judge this approach is to show whether consumption opportunities differ depending on partner's class. Because conventionalists assume market position to be reflected by a simple average across all possible cross-class families within each father's class, the difference between labor incomes across cross-class households within fathers' class can serve as a litmus test.

Table A. 6 summarizes such a descriptive test by simply cross-tabulating married men's class by partners' class for each country based on data for 2011 from the SOEP and the PSID. This can be considered a conservative test because the data used to consider the importance of partners' labor income is recent, whereas the dispute concentrates on social origins dating back to times where occupational segregation by gender and the gender-pay gap was (if anything) higher (Blau & Kahn, 1994; Blau et al., 2013). Each cell contains two values, each equaling the ratio of the combined labor income for a given class combination of men (rows) and their partners (columns), relative to the mean of the combined labor income by (male) individuals' class that is assumed by conventional approaches.[78] The upper value represents the fraction in Germany, whereas the lower value equals the ratio in the United States. I define 30% above or below the average combined labor income as a critical boundary from which partners' income may play a substantial role for the market situation of families. We used gray to emphasize cross-class families which on average substantially depart from mean labor incomes. Bracketed values indicate that the average is based on less than 10 cross-class families. An asterisk indicates that both cell and row mean differ significantly ($\alpha = .01$) if tested for equality by means of a Welch's t-test (Fagerland & Sandvik, 2009). Cells which differ substantially and significantly and are based on at least 10 observations are shaded gray for the ease of the reader.

All in total, 12 and 21 family combinations in Germany and the United States show substantially higher or lower incomes than the average assumed by the conventionalist approach. Due to the gendered class structure, however, combinations in which men are married with women working in male-dominated industrial classes like managers and administrators, skilled and unskilled manual workers are unreliably sparse. Arguably, these cases are of negligible quantitative importance because they are likely to be as infrequent in the population as they are in the sample due to the strong gender segregation on the labor market. Excluding those cells in which either the difference between the mean is insignificant given the sample variances, or observations are too few to trust either the mean or the t-test, five to six cells in both countries display substantial differences (gray colored). The five such cases in Germany are comprised of men who are married to partners in the professional class. In all cases the income is considerably higher than men's class alone would suggest. Similarly (though statistically insignificant or based on too few observations), cases in which partners are found in the manager and administrator class display higher incomes than would be expected from a male-only perspective.

[78] Each of the two cell values equals $CV_{i,j} = \frac{1}{n_{ij}} \sum_{i=1}^{I} \left(\frac{Y_i^M + Y_j^P}{\frac{1}{n_{ij}} \left(\sum_{j=1}^{J} Y_i^M + Y_j^P \right)} \right)$, with Y_i^M equaling men's income in class i and Y_j^P equaling the partner's income in class j and n_{ij} equaling the number of individuals in each class combination.

Table A. 6: Ratio of cross-class HH to average earnings of men

Individual's Class		*Class of Partner*							
		M&A	C&O	SMW	UMW	PFS	SPF	SSW	USW
	Managers & Administrators	112.3	105.8	(100.4)	(83.8)	137.7*	93.6	97.3	74.3*
		106.1	84.4	(210.9)	(41.1)	144.4	97.2	68.0*	74.9
	Clerks & Officers	(135.2)	121.0*	(104.6)	(79.0)	136.2*	106.0	105.0	87.1*
		(166.3)	100.3	(87.2)	(57.1)*	(134.0)	120.7	77.2	82.5
	Skilled Manual Workers	122.7	115.9*	116.9	92.1	160.3*	112.9*	107.5	92.1*
		149.3	119.2*	(136.0)	94.2	146.0	124.5*	113.1	84.8*
	Unskilled Manual Workers	(126.6)	117.0*	(125.9)	112.3	(178.6)	128.8*	122.0	96.6
		(161.1)	125.2*	(130.0)	99.2	(88.6)	139.9*	116.7	88.3
	Professionals	148.1	102.0	95.8	(78.9)*	127.2*	102.7	88.7	100.7
		147.0	83.1	(96.3)	(n.a.)	107.9	103.8	83.1	92.8
	Semi-Professionals	(131.2)	116.4	113.0	(57.2)*	137.8*	111.1	93.5	73.4*
		129.0	96.7	(68.2)*	(71.4)	122.1	107.7	117.2	73.9*
	Skilled Service Workers	(133.0)	106.3	(89.0)	(79.7)*	169.5*	113.7*	93.1	87.4
		149.5*	98.0	(129.7)	72.1	134.3*	124.8*	112.0	68.2*
	Unskilled Service Workers	(113.5)	147.1	(109.2)	124.3	(156.0)*	116.6	128.1*	97.6
		153.1	132.9*	(118.4)	106.4	182.5	126.4*	110.4	77.5*

Note: Upper value Germans, lower value Americans. Data from SOEPv29 2011 (N=2,706) and PSID2011 (N= 2,187). Married employed individuals with employed partners. In Germany, post-government labor income is used, whereas in the U.S. only gross labor income was available. Bracketed values are based on less than 10 observations. An asterisk indicates that the cell mean differs significantly ($\alpha = 0.01.$) from the row mean.

A similar pattern is found in the United States with regard to men in the skilled service class who are married to a partner from the professional or the manager and administrator class. The substantially higher incomes in other combinations involving similar high class partners are not significant. The other four combinations characterized by substantially (and significantly) different resources are unskilled service workers cohabitating with clerks and officers (133%), unskilled manual workers cohabitating with semi-professionals (140%), skilled service workers cohabitating with unskilled service workers (68%) and managers and administrators cohabitating with skilled service workers (68%). Consequently, one might expect that excess resources in the first two cases and a lack thereof in the latter two cases would reduce immobility across generations.

Summing up, we only find few substantial and significant differences between conventionalists' mean combined income and cross-class-specific income positions. Where differences exist, families generally bridge the middle classes and are able to spend substantially more or less resources on their children than typically available within families of similarly assigned class positions. If couples are both from higher classes, this of course increases immobility, whereas in all other combinations mobility should consequently increase. This finding, however, seems at first to question Beller's finding regarding decreasing social fluidity in the U.S. once social origins jointly consider mothers' and fathers' class positions (Beller, 2009). If resource differences are insignificant or unsubstantial, why should including mothers' class in the conceptualization of social origins affect trends in social fluidity? One of the reasons, in accordance with the findings presented here, might be a compositional effect. As is well known, homogamy increased over the last decades, especially among those with the highest and lowest educational attainment (Kalmijn, 1991; Schwartz & Mare, 2005). Thus, increasing fractions of children are born in households with excess resources or in those with very limited means. In both cases, the results presented here would point towards a reduction in social fluidity and suggest that the conventionalist approach overestimates social mobility trends where in fact immobility is more pronounced the more polarized the families are.

Because we lack the information on mothers' class position for several surveys, we have to stick to the conventionalist approach which can be said to reflect most, but certainly not all, economic resource differences of background classes. Based on these tentative findings and Beller's analyses, I consider the conventional design a truly conservative approach because it might underestimate mobility chances. Thus, if we find trends towards lower or higher fluidity with the conventional approach, they should be even stronger if the more reliable joint consideration is employed. In the following, we will finally study the occupational structural change that took place in Germany and the United States.

15.4 Methodological strategy for the analysis of social fluidity

It has become good practice in mobility research to overcome the problem of structurally forced mobility by employing log-linear models. Log-linear models allow testing for any kind of association between origins and destinations by comparing a hypothetical mobility table, i.e. an expected mobility table calculated under specified hypotheses about the origin-destination association, with the actually observed one. A hypothetical model can be calculated using the usual log-linear framework (Knoke, 1980; Hout, 1983; Goodman, 1984; Agresti, 2007, 2012; von Eye & Mun, 2013). In a cross-classification of N individuals in a table of origin (O) class by destination (D) class, the cell frequency can be calculated with the following (saturated) model:

$$F_{ij} = \eta\tau_i^O\tau_j^D\tau_{i,j}^{OD} \qquad (1)$$

The expected frequencies $F_{i,j}^{RC}$ within each combination of I origin and J destination classes is a function of several parameters (Knoke, 1980). η denotes some constant, usually the sample size, whereas the τ parameters account for the probabilities in the marginal distributions of any of the constituent variables of the mobility table, i.e. τ_i^O for the origin distribution and τ_j^D for the destination distribution. Finally, a set of parameters $\tau_{i,j}^{OD}$ account for the interaction of origins and destinations. The latter parameters are the ones which represent the local odds ratios, hence the interesting origin-destination association. In order to simplify the calculations and interpretations, we take the logarithm of the cell probability model introduced above. This yields

$$G_{i,j} = \theta + \lambda_i^O + \lambda_j^D + \lambda_{i,j}^{OD} \qquad (2)$$

with $G_{i,j} = \ln F_{i,j}$, $\theta = \ln N$, $\lambda_i^O = \ln \tau_i^O$, $\lambda_j^D = \ln \tau_j^D$ and $\lambda_{i,j}^{OD} = \ln \tau_{i,j}^{OD}$. While (2) perfectly estimates all cell frequencies, it uses as many parameters as there are unknown cells $(I - 1) * (J - 1)$ in the table. Instead, we might argue that there is no association between origins and destinations, i.e. class attainment is independent of origin class, and therefore constrain $\lambda_{i,j}^{OD}$ to be zero. The resulting independence model $G_{i,j} = \theta + \lambda_i^O + \lambda_j^D$ yields a table in which given the origin and destination marginal distribution, individuals are equally likely to enter any destination class. After obtaining one or more alternative specifications of social fluidity, we can compare the models using different test statistics.

The likelihood ratio statistic allows testing for the overall model fit. The likelihood ratio test statistic equals $-2\log(\Lambda)$ with $\Lambda = \frac{\text{max. LL of restricted Model}}{\text{max. LL of unrestricted Model}}$ (Agresti, 2007, pp. 11-12). Larger Λ values indicate small differences between observed and expected frequencies and result in accepting (conventionally at $\mathrm{p-value} > .05$) the hypothetical model as a good representation of the reality. In three or more dimensional tables, we can further test for conditional independence, i.e. whether a certain partial association exists or whether the pertaining parameter, e.g., λ_{ij}^{OD} equals zero. The respective likelihood ratio test statistic equals the difference of the deviance (G^2) of the restricted model M_R and the unrestricted model M_{UR} and is evaluated by comparison with a χ^2 distribution with degrees of freedom (df) equal to the difference of df of both models. A low probability (conventionally $\alpha < .05$) indicates that the increase in model fit of the more restricted model warrants the loss of parsimony. This test, however, is only employable if the two models are hierarchical or nested in each other, i.e. if all parameters from the restricted model are also included in the unrestricted model. If we want to compare non-nested models, we employ the Bayesian Information Criterion (BIC) proposed by Raftery (Raftery, 1986). The formula for the criterion (based on G^2) is $\mathrm{BIC} = G^2 + \mathrm{d.f.} \times \log(N)$. The lower the BIC value, the better or the more parsimoniously the model fits the data. If two models are compared, a difference of 10 is considered a strong indication that the respective model is the better fitting model (Raftery, 1995). While BIC allows comparison across models, it comes with the caveat that it is an extremely conservative test especially if sample sizes are large (Raftery, 1999; Weakliem, 1999). An additional information criterion for model selection has been proposed by Akaike (Akaike, 1974). Based on G^2, its formula is $\mathrm{AIC} = G^2 + 2 \times \mathrm{d.f.}$ and again the lower the value, the better the model. There are several arguments favoring the AIC criterion in model selection, especially with regard to social mobility research (Burnham & Anderson, 2002; Burnham & Anderson, 2004). For example, cells with zero observations and unequally distributed margins increase the likelihood of favoring the null hypothesis if the BIC is used (Weakliem, 1999). Although the BIC criterion has been abandoned by some mobility researchers (Breen, 2004b), we report it here for readers who are used to it and as a conservative measurement of model fit. Finally, observed and hypothetical tables can be compared with the dissimilarity index (DI) Δ, which captures how many observations would have to be rearranged in order to obtain similar cell frequencies between both tables.

While statistics are important tools to compare different tables, they provide us with little help to formulate intelligible models for our real world data. Neither of the two models introduced above, the saturated and the independence model, are really helpful for modeling the interactions of origin and destination classes for the analysis of social fluidity. Therefore, we will discuss some basic extensions before we commence the analysis. The origin-destination associations within a two-dimensional mobility table can be creatively modeled in various ways (Hout, 1983; Breen, 2004b). Each of the following examples is represented by its own effect matrix in Figure A. 1. Numbers denote parameters fitted to capture the association between origin (column) and destination (row) class in the specified cell relative to the zero cells. For presentational purposes, we assume a 8 x 8 mobility table cross-classifying origin and destination class locations of individuals.

Figure A. 1: Matrices for mobility models for 8 × 8 contingency tables

Perfect Mobility (PM)									*Semi-Quasi Perfect Mobility (SQPM)*								
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
M&A (1)	0	0	0	0	0	0	0	0	M&A (1)	1	0	0	0	0	0	0	0
C&O (2)	0	0	0	0	0	0	0	0	C&O (2)	0	1	0	0	0	0	0	0
SMW (3)	0	0	0	0	0	0	0	0	SMW (3)	0	0	1	0	0	0	0	0
UMW (4)	0	0	0	0	0	0	0	0	UMW (4)	0	0	0	1	0	0	0	0
PFS (5)	0	0	0	0	0	0	0	0	PFS (5)	0	0	0	0	1	0	0	0
SPF (6)	0	0	0	0	0	0	0	0	SPF (6)	0	0	0	0	0	1	0	0
SSW (7)	0	0	0	0	0	0	0	0	SSW (7)	0	0	0	0	0	0	1	0
USW (8)	0	0	0	0	0	0	0	0	USW (8)	0	0	0	0	0	0	0	1
Quasi Perfect Mobility (QPM)									*Corner Model*								
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
M&A (1)	1	0	0	0	0	0	0	0	M&A (1)	1	0	0	0	0	0	0	2
C&O (2)	0	2	0	0	0	0	0	0	C&O (2)	0	0	0	0	0	0	0	0
SMW (3)	0	0	3	0	0	0	0	0	SMW (3)	0	0	0	0	0	0	0	0
UMW (4)	0	0	0	4	0	0	0	0	UMW (4)	0	0	0	0	0	0	0	0
PFS (5)	0	0	0	0	5	0	0	0	PFS (5)	0	0	0	0	0	0	0	0
SPF (6)	0	0	0	0	0	6	0	0	SPF (6)	0	0	0	0	0	0	0	0
SSW (7)	0	0	0	0	0	0	7	0	SSW (7)	0	0	0	0	0	0	0	0
USW (8)	0	0	0	0	0	0	0	8	USW (8)	2	0	0	0	0	0	0	1

Note: The PM, (S)QPM and the corner model are described in Goodman (1972). Figures in cells denote effects and respective parameters.

Frequently, the model of independence or perfect mobility (PM) sets the benchmark against which the association within a mobility table is studied. The PM model assumes equiprobability, i.e. individuals from all backgrounds have the same chance to reach any of the destination class positions. In this case, we do not fit any $\lambda_{i,j}^{OD}$ parameter (which is, of course, the same as if we had fit a parameter equal to zero), hence the origin-destination association equals zero. In contrast, the model of quasi-perfect mobility (QPM) assumes that equiprobability is restricted to mobile individuals (i.e., the off-diagonal cells), whereas individuals have a higher propensity to stay in their origin class than to be mobile. There are two cases of QPM (Goodman, 1972; Breen, 2004b). In the model of semi-quasi perfect mobility (SQPM), the propensity for stayers is similar across classes, e.g., like in a caste system. In QPM, however, immobility is class-specific such as immobility is more likely in some classes than in others. Any kind of intermediate QPM is of course possible to model. Another frequently employed model for the description of association is the corner-model which assumes that the four corners of the mobility table, i.e. if origins and destinations are ordered, the highest and lowest classes are characterized by significantly different mobility propensity (Hout, 1983). In other words, individuals from the highest and lowest classes are particularly likely to be immobile, and if mobile they particularly unlikely to move in the respective other extreme position.

While the simple models proposed above provide good summary measures concentrating on specific groups of cells, topological or structural models have been proposed to model social fluidity in a more complex way. Based on Goodman's (1972) introduction to multiplicative models, the first topological models were employed by Hauser (Featherman & Hauser, 1978; Hauser, 1978). Topological models assume that particular origin-destination combinations of the mobility table are characterized by similar mobility propensities. They not only allow for testing whether there is some origin-destination association, but also allow for the hypothesis of mobility barriers and channels and test whether such assumptions are warranted given the observed mobility chances. Parameter size and the corresponding odds ratios further help to gauge the relative heights of barriers between classes. Another topological model is the core model of social fluidity (CMSF) proposed by Erikson and Goldthorpe (1992). The four matrices in the top panel of Figure A. 2 are taken from the core model of social fluidity. From top left to bottom right they account for sector barriers (SE1), class inheritance (IN1, IN2) and social affinity (AF2), which offsets hierarchical barriers. In total, Erikson and Goldthorpe used eight such topographical parameters (and further altered them for particular countries) to model social mobility assuming sectoral, hierarchy, inheritance and affinity effects governing the mobility process. While topological models are frequently theoretically motivated, the association between origin and destination classes can also be based on empirically derived measures for their social distance, e.g., status (Hout, 1988; Breen & Whelan, 1994).

Figure A. 2: Parameter matrices for selected topological models

Sectoral Barriers (SE1)

	I+II	III	IV*a*+*b*	IV*c*	V(I)	VII*a*	VII*b*
I+II	1	1	1	2	1	1	2
III	1	1	1	2	1	1	2
IV*a*+*b*	1	1	1	2	1	1	2
IV*c*	2	2	2	1	2	2	1
V(I)	1	1	1	2	1	1	2
VII*a*	1	1	1	2	1	1	2
VII*b*	2	2	2	1	2	2	1

Inheritance 1 (IN1)

	I+II	III	IV*a*+*b*	IV*c*	V(I)	VII*a*	VII*b*
I+II	2	1	1	1	1	1	1
III	1	2	1	1	1	1	1
IV*a*+*b*	1	1	2	1	1	1	1
IV*c*	1	1	1	2	1	1	1
V(I)	1	1	1	1	2	1	1
VII*a*	1	1	1	1	1	2	1
VII*b*	1	1	1	1	1	1	2

Inheritance 2 (IN2)

	I+II	III	IV*a*+*b*	IV*c*	V(I)	VII*a*	VII*b*
I+II	2	1	1	1	1	1	1
III	1	1	1	1	1	1	1
IV*a*+*b*	1	1	2	1	1	1	1
IV*c*	1	1	1	2	1	1	1
V(I)	1	1	1	1	1	1	1
VII*a*	1	1	1	1	1	1	1
VII*b*	1	1	1	1	1	1	1

Positive Affinity (AF2)

	I+II	III	IV*a*+*b*	IV*c*	V(I)	VII*a*	VII*b*
I+II	1	2	2	1	1	1	1
III	2	1	1	1	1	1	1
IV*a*+*b*	2	1	1	2	1	1	1
IV*c*	1	1	2	1	1	2	1
V(I)	1	1	1	1	1	2	1
VII*a*	1	1	1	1	2	1	1
VII*b*	1	1	1	1	1	2	1

Level Model

	1	2	3	4	5
1	1	2	4	5	6
2	2	3	4	5	6
3	4	4	4	5	5
4	5	5	5	6	5
5	6	6	5	5	4

With status groups in rows (father) and columns (son):

1= professional and high administrative
2= managerial and executive
3= inspectional, supervisory, other non-manua
4= skilled manual and routine non-manual
5= semi-skilled manual and unskilled manual

Note: The level model is described in Hauser (1978) and the (complete) core model of social fluidity is developed in Erikson and Goldthorpe (1992). For explanations, see text. Figures in cells denote effects and respective parameters.

While these models are sufficient to model the association in origin by destination tables, it is also possible to use a third dimension, usually denoted as "layer", to model change in the parameters over time or differences in between countries. Such a three or four dimensional table, e.g., a country by cohort by origin by destination table can be parsimoniously modeled using the log-multiplicative layer effect model, also called the uniform difference (UniDiff) model independently proposed by Xie as well as Erikson and Goldthorpe (Erikson & Goldthorpe, 1992; Xie, 1992). The UniDiff can be written as $G_{i,j} = \theta + \lambda_i^O + \lambda_j^D + \varphi_C \theta_{i,j}^{OD}$, where the θs represent the average uniform origin-destination association in the over C collapsed mobility table and the φs describe the table-specific, i.e., heterogeneous, deviation from that pattern. Consequently, the UniDiff model allows us to compare the origin-destination across countries, periods or birth cohorts. A further simplification of the UniDiff model is to constrain the differences in θ between the C tables to be represented by a linear, i.e., homogeneous, trend over C. If social fluidity is increasing or decreasing homogeneously across cohorts, a linear UniDiff model is a more parsimonious model than the log-multiplicative layer effect model.

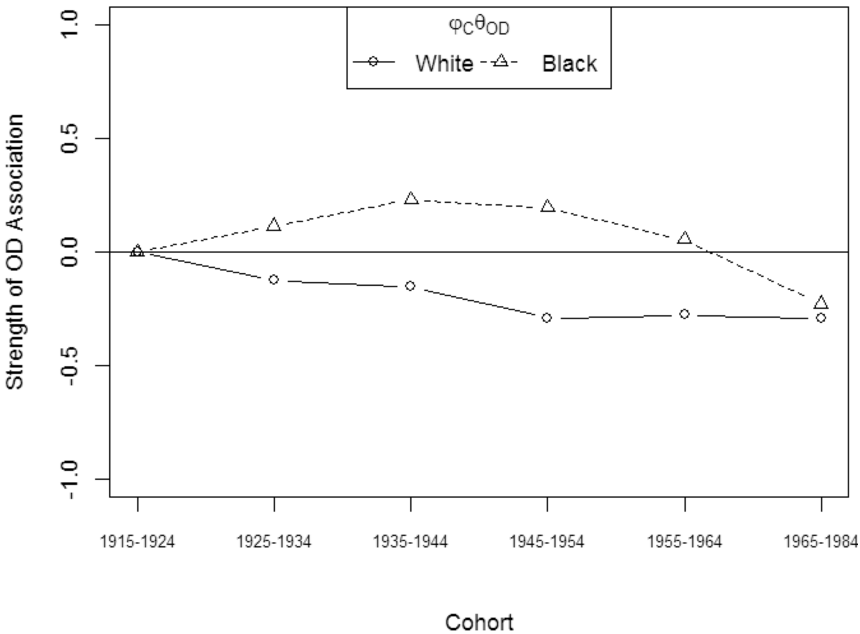
Thus, any kind of modeling exercise that will be done in the following has its own rationale, i.e. assumptions about the mobility table or particular cells in the mobility table. While we may constrain certain interactions, or model the origin-destination association in a more complex way, the main goal remains to find a model which informs us, in a reliable way and as parsimoniously as possible, about the social fluidity pattern in the two countries under study.

Table A. 7: Survey, region and migration background effect, Germany

M	*Parameters*	*df*	*G2*	*rG2*	*P-value*	*Δ*	*BIC*	*AIC*	*α-value vs.*	
									M1	*M2*
Men - Destination by Cohort (i.e. Collapsed over cohorts)										
1	O,D,S	384	11,571	n.a.	0.000	19.0	7,484	13,901		
2	1 + OS,DS	320	9,225	20.3	0.000	17.1	5,819	11,682	0.000	
3	2 + OD	256	489	95.8	0.000	3.6	-2,236	3,075	0.000	0.000
1	O,D,M	144	11,974	n.a.	0.000	18.1	10,442	13,015		
2	1 + OM,DM	128	8,539	28.7	0.000	16.3	7,176	9,612	0.000	
3	2 + OD	64	136	98.9	0.000	1.0	-545	1,337	0.000	0.000
1	O,D,E	144	10,188	n.a.	0.000	18.2	8,655	11,295		
2	1 + OE,DE	128	9,031	11.4	0.000	16.7	7,668	10,170	0.000	
3	2 + OD	64	122	98.8	0.000	1.6	-559	1,389	0.000	0.000
Men - Destination by Origin by Cohort										
1	OS,DS,CS	2,720	12,976	n.a.	0.000	20.1	-15,975	21,300		
2	1 + COS,CDS	2,240	10,718	17.4	0.000	18.2	-13,124	20,002	0.000	
3	2 + φ_COD	2,142	1,859	85.7	1.000	6.2	-20,940	11,338	0.000	0.000
1	OM,DM,CM	1,088	11,783	n.a.	0.000	19.1	203	16,264		
2	1 + COM,CDM	896	9,287	21.2	0.000	16.9	-250	14,152	0.000	
3	2 + φ_COD	819	942	92.0	0.002	3.8	-7,775	5,961	0.000	0.000
1	OE,DE,CE	1,088	12,207	n.a.	0.000	19.7	627	17,019		
2	1 + COE,CDE	896	9,806	19.7	0.000	17.4	270	15,003	0.000	
3	2 + φ_COD	819	875	92.8	0.084	4.2	-7,842	6,226	0.000	0.000
Women - Destination by Cohort (i.e. Collapsed over cohorts)										
1	O,D,S	384	7,355	n.a.	0.000	16.0	3,351	9,587		
2	1 + OS,DS	320	5,297	28.0	0.000	13.1	1,961	7,658	0.000	
3	2 + OD	256	428	94.2	0.000	3.7	-2,241	2,916	0.000	0.000
1	O,D,M	144	6,565	n.a.	0.000	14.1	5,064	7,560		
2	1 + OM,DM	128	4,869	25.8	0.000	12.3	3,535	5,896	0.000	
3	2 + OD	64	79	98.8	0.095	0.8	-588	1,234	0.000	0.000
1	O,D,E	144	5,765	n.a.	0.000	14.3	4,264	6,845		
2	1 + OE,DE	128	5,048	12.4	0.000	12.5	3,714	6,160	0.000	
3	2 + OD	64	80	98.6	0.081	1.4	-587	1,320	0.000	0.000
Women - Destination by Origin by Cohort										
1	OS,DS,CS	2,720	9,304	n.a.	0.000	18.1	-19,053	16,909		
2	1 + COS,CDS	2,240	6,700	28.0	0.000	14.7	-16,653	15,265	0.000	
3	2 + φ_COD	2,170	1,948	79.1	0.999	7.1	-20,675	10,653	0.000	0.000
1	OM,DM,CM	1,088	8,601	n.a.	0.000	17.2	-2,742	12,716		
2	1 + COM,CDM	896	5,475	36.3	0.000	13.0	-3,866	9,974	0.000	
3	2 + φ_COD	826	894	89.6	0.051	4.3	-7,718	5,533	0.000	0.000
1	OE,DE,CE	1,088	8,707	n.a.	0.000	17.6	-2,636	13,248		
2	1 + COE,CDE	896	5,702	34.5	0.000	13.5	-3,639	10,627	0.000	
3	2 + φ_COD	826	908	89.6	0.024	4.9	-7,703	5,973	0.000	0.000

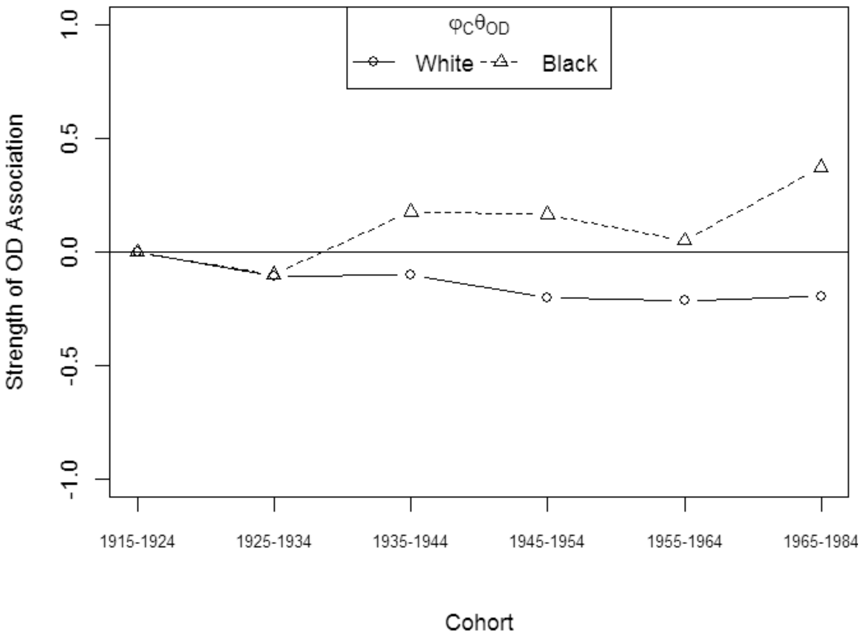
Note: Composite data set (ref. Ch. 6). N=41,928 men and 33,697 women.

Figure A. 3: Modelling cohort change by race for men, United States



Note: Based on data for African-American and white men only using the compiled dataset (ref to Ch. 6 for information) but collapsing the last two cohorts. $df = 693$, $G^2 = 890.5, rG^2 = 93.2\%, P - value = 0.0000,\ \Delta = 3.8\%, BIC = -6{,}770.4, AIC = 6{,}293.5, N = 63{,}238$ ($Whites = 53{,}699$; $African\ Americans = 9{,}539$)

Figure A. 4: Modelling cohort change by race for women, United States



Note: Based on data for African-American and white women only using the compiled dataset (ref to Ch. 6 for information). Model statistics: $df = 693$, $G^2 = 793.4, rG^2 = 87.7\%, P - value = 0.0047$ $\Delta = 4.2\%, BIC = -6{,}549.1, AIC = 5{,}597.0, N = 39{,}947$ $(Whites = 32{,}094; African\ Americans = 7{,}853)$.