Edited by
Daniela Felisini

REASSESSING THE ROLE OF MANAGEMENT IN THE GOLDEN AGE

An International Comparison of Public Sector Managers 1945–1975

Central Issues in Contemporary Economic Theory and Policy

General Editor: Gustavo Piga

Central Issues in Contemporary Economic Theory and Policy

Series Editor

Gustavo Piga
Economia e Istituzioni
Tor Vergata University
Rome, Italy

Daniela Felisini
Editor

Reassessing the Role of Management in the Golden Age

An International Comparison of Public Sector Managers 1945–1975

palgrave
macmillan

Editor
Daniela Felisini
Department of History, Humanities and Society
University of Rome "Tor Vergata"
Rome, Italy

Central Issues in Contemporary Economic Theory and Policy
ISBN 978-3-319-48721-2 ISBN 978-3-319-48722-9 (eBook)
DOI 10.1007/978-3-319-48722-9

Library of Congress Control Number: 2017931972

Printed on acid-free paper

This Palgrave Macmillan imprint is published by Springer Nature
The registered company is Springer International Publishing AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Contents

List of Figures and Graph

List of Tables

Introduction

Daniela Felisini

Abstract This book provides a critical reassessment of the role of the public sector during the Golden Age in both advanced and emerging economies. Authoritative scholars from all over the world focus on a major player in the shaping of mixed economies: the top managers of State-owned enterprises. They analyze values, economic cultures and strategies of these managers, opening up a comparative perspective of the topic. The following chapters suggest a reconsideration of the role played by the State in the economic development and in the modernization of the production apparatus of many countries in Western Europe and Asia, Latin America and Africa.

For almost three decades, the so-called Washington consensus—the "mystique of the market", based on unreserved faith in its self-regulating capabilities—has shaped national and global economic cultures, inspiring corporate strategies and enhancing the social standing of managers. Nevertheless, the severe financial crisis that started in 2008 has shaken this faith as it invoked and

D. Felisini (✉)
Department of History, Humanities and Society, University of Rome "Tor Vergata", Rome, Italy

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_1

relegitimized State intervention, especially in the United States and Europe. The massive bailouts of banks and industrial firms involved a new presence of the State in enterprises, thus raising new reflections on their management.

Meanwhile, the world economic power continues to shift to the emerging markets, where the State and State-owned companies remain major economic players. They accounted for one-third of the emerging world's foreign direct investment between 2003 and 2010, and in 2014 out of the ten biggest global listed companies by revenues, four were State-owned ones (three being Chinese). Additionally, there is the exploit of sovereign wealth funds, while technical agencies such as the International Monetary Fund and the European Central Bank are playing an increasingly relevant role.

This situation provides an important opportunity for business historians since it calls for a critical reassessment of the role of the public sector during the Golden Age in advanced as well as emerging economies, focusing on a major player in the setting of mixed economies: the top managers of State-owned enterprises (SOEs). Without denying the fact that those companies encountered important, even radical failures, we still have to consider how crucial SOEs were for economic recovery and for the modernization of the productive apparatus of many countries, from Western Europe to India, from Latin America to South Africa.

Inspired by these considerations, together with Franco Amatori, the first designer of the project, and Nuria Puig Raposo, whom I thank deeply for the initial work done together, we decided to organize a session at the 17th World Economic History Congress in Kyoto (August 2015). The main goal of the session was to identify a significant number of managers of State-owned companies, in industrial, financial and other services sectors, at both the individual and collective levels and to examine their professional development and performance during the Golden Age. More specifically, we were interested in knowing their profile: family origins, education, networks, recruitment in SOEs, professional career, the international dimension of their actions, eventually their "in and out" with the public sector and their possible conflicts of interest. Via a comparative perspective, we wished to examine their actions in all their complexity and estimate their overall impact on the socio-economic system. We also aimed at analysing the contribution of managers and managerial institutions to the rise and fall of the mixed economy and its cultural paradigms.

In this volume it is possible to find gathered the proposals of scholars from all over the world. They presented the experiences of various countries, with different institutional settings, thus opening a real comparative perspective. The papers have been carefully discussed by Matthias Kipping and Luciano

Segreto—whom I thank profusely—and extensively debated during the session; then the papers have been developed in the articles here published.

All the chapters have as background the major issue of the "Leviathan as entrepreneur", an entity transversal *vis à vis* the dominant political regimes and rather influenced by the hegemonic economic cultures. Amatori in his short paper describes the wide experiences of SOEs in Europe along the twentieth century, their different origins and motivations. SOEs were already diffused in some countries before the outbreak of the Second World War, but their great season in market economies happened in the period of the so-called Golden Age, as showed by the major cases of the UK, France and Italy. Looking also to Japan and US business histories, the author compares the different models of enterprise and governance, concluding that "a highly diversified big group needs to be 'headless' as much as is possible. Its structure should guarantee a robust autonomy to company leaders. In order to avoid a fracture between firms and headquarter, the latter needs to maintain limited dimensions and focus on the role of guarantor of the effectiveness of the managerial action."

The managerial action is at the core of most of the chapters. Both Rollins and Felisini base their chapters on empirical evidence: they have built database of managers, respectively, in UK and Italian SOEs, collecting information on their background, training and experience from a wide range of sources. Those database allow the exploration of managerial style, notions of governance (the degree of centralization/devolution underlined by Rollins for the British experience) and networks of relationships both in private and in public businesses and with the political *milieu*. Fridenson too examines the managers of the wide French public sector, focusing on their origins and recruitment, their activities and results and the relations between them "as agents and the State as principal". Both French and Italian experiences reveal that most public sector managers contributed to growth, promoting the introduction of American management methods, of technological and organizational innovations and of new human resource management. However, in both cases managers had to cope with "the contradictions and the heterogeneity of the State", especially in financial support, often inconsistent with economic and social goals given to SOEs.

Hitherto not well known is the case presented by Verhoef on South African Oil and Gas Corporation (SASOL), established by the government in 1951 in order to supply fuel to the domestic market, so reducing the strong energy dependence of the country and fostering its industrial development. The production of liquid fuel from coal was an experimental and risky business, in comparison with gold mining, so the South African government decided to

intervene with direct investments to enable the new activity, vainly hoping on a joint public/private ownership. As in the Italian and Argentinian cases, the SASOL Board of Directors and the management team worked with a strong commitment to national industrial development. Managers were appointed on the basis of expertise and leading characters of engineers promoted an active engagement of the corporation in research and development. Verhoef illustrates the background of the SASOL management, their socio-cultural context, their education and relationship with personalities in government as well as their links, showing the impact of independent professional management on a SOE. In the first years, SASOL activity raised criticism related to its growing capital requirements and budget losses. But the oil crisis of the 1970s enhanced its profits and role, confirming the efficiency of its oil-refining process. In the same years, the managerial team adopted a stance that may appear paradoxical and fostered privatization and the listing of the company on the Johannesburg Securities Exchange, while asking the government for tariff protection. The listing was a success and enabled SASOL to raise fresh capital for expansion in the foreign markets. The author concludes that the success of SASOL in establishing a commercially viable fuel from coal industry in South Africa, and to expand innovative operations into the wider chemical industry, was ultimately dependent on the State's industrial policy during the initial stage, as well as on the quality of management.

Focusing on the case of Astilleros y Fábricas Navales del Estado (AFNE), a shipyard created by the Navy in the early 1950s, Russo analyses the role of Latin American military and technical bureaucracies in boosting State intervention in the economy, mainly in strategic sectors (energy, transport and communications). In Argentina, the senior officers of the Army and the Navy, mainly engineers with technical training, played a key role in the consolidation of the developmental State and influenced the creation and the trajectory of SOEs. The author raises several questions, the most important of which deals with the long run role of the SOEs in terms of investment, development of technological capabilities and other positive spillovers in the Argentinian economy. From 1967 the number of SOEs increased, due to the Industrial Rehabilitation Act for companies in financial difficulties: 187 firms were beneficiated and many, finally, nationalized. The moment of greatest expansion of the post-war military-industrial complex took place in the late 1970s, but in the second half of the 1980s, it was dismantled due to the loss of political power of the military and the rise of neo-liberal vision. AFNE faced the possibility of closure and privatization; in 1993, the shipyard became dependent on the administration of Buenos Aires' province and thereafter began an erratic path.

Almost all chapters add colour to general analysis with the presentation of peculiar examples based on the deeper personal account. Rollins deals with the venture of Lord Ezra, hired by the National Coal Board in 1945 and chairman in the years 1972–1982; in his second chapter Amatori compares the profiles of two leading members of the greatest Italian SOEs: Pasquale Saraceno (IRI - Istituto per la Ricostruzione Industriale)) and Giorgio Fuà (ENI - Ente Nazionale Idrocarburi). Verhoef highlights the role of Etienne Rousseau, the engineer founder and managing director of SASOL, while Russo draws attention to two military characters: Edmundo Manera, the Rear Admiral and naval engineer who conceived the AFNE in the 1940s and 1950s, and the Sea Captain Enrique Carranza, who guided its expansion between the 1960s and the 1980s.

Notwithstanding the different origins and ventures of the managerial teams here considered, some red wires run through the various chapters. First and foremost, there is the relevance of their background and value system in shaping the identity and the action of SOEs managers: they were mainly "technocrats" and imbued with "national" commitment as the IRI case examined by Felisini could widely demonstrate. Graduated from the best universities and schools of their countries (see the French case illustrated by Fridenson), linked in complex networks with politicians and private managers, they all belonged to national ruling classes and joined managerial roles with the spirit of public service. This determined everywhere a permanent underlying tension over the difficult balance between the demands of government, be it for social, political or wider economic objectives, and the sound administration of the firms.

This introduces the second important aspect highlighted by all the authors, namely the crucial relationship between SOEs' boards and governments. A relationship that cannot be painted in black and white, but is the result of much more complex arrangements than the institutional plots and the economic performances of SOEs reveal. In almost all the explored cases, even the most successful ones as South African SASOL, by the mid-1970s, the relationship between the government and the nationalized industries became "in need of radical change".

The illustrated Asian cases, those of Japan, India and South Korea, show us a mirror-image perspective, where the three authors analyse the State institutions that guided the economy and their relationships with enterprises. In the interview granted to Amatori and Molteni, Fukukawa, who was for a long time vice minister of the Ministry of International Trade and Industry (MITI), retraces the role of the ministry in guiding the Japanese industrial economy. Founded in May 1949, when the Japanese economy was recovering from the economic disaster of the war, MITI was one of the most powerful

State agencies. In the 1950s and 1960s, it effectively ran much of Japanese industrial policies, with the major objective of strengthening the country's industrial basis, not differently from what other governments were doing through the instrument of SOEs. The ministry acted both as an arbiter and as a regulator, providing private industries with guidelines on technological investments and on domestic and foreign competition aspects. In its actions it happened to have divergences with the government financial administrations about the funding of investments, a problem often encountered by SOEs also in other countries, which demonstrates the difficulties of establishing consistent economic policies by any government. Fukukawa does not only underline the vision-inspiring MITI—relying strongly on the belief in the efficiency of market functions—but also illustrate the working of MITI from inside, that is, the "moral suasion" style at the basis of the relationships between its officials and private managers.

Also Das Gupta, in outlining the role of the State in the Indian economy during the first three decades after the independence, focuses on the relationship between the public and the private sector. In his study, he demonstrates that, in the period of dirigisme, India's big capitalists did not perceive the private and the public sectors as competing entities. On the contrary, they supported "mixed economy" and looked for complementarity in the form of linkages and vertical integrations. The public sector was considered a viable institutional response to overcome the constraints in access to technology that most Third-World nations faced at independence. The strong criticisms raised in the 1980s towards the cumbersome presence of the State were motivated by the slow growth rate of Indian economy in comparison with other Asian Countries; in particular, reference was made to the closure of the economy to the outside world (inconvertible rupee and protectionism) and to the central planning called Permit Raj System, in which firms required a huge number of licences to operate. Notwithstanding the failures of that system (bureaucratization of the economy) and its changes (privatization since the 1990s), Das Gupta argues that the changing role of the public sector in India can only be understood in terms of the continuities, changes and compulsions of the overall regime of private capital accumulation after the independence.

In the case of South Korea as well, the stand-up of the developmental State was a measure to preserve the independence and the very survival of the country. In the 1950s Korea was one of the least developed economies in the world, and its geopolitical position, facing three communist nations (Soviet Union, China and North Korea) during the Cold War, put the nation in a constantly tense environment. The State-led industrialization, analysed by Choi, began from the 1960s and arrived to develop a distinct catch-up

model for economic growth, within a demographic dynamics that the author assumes as a crucial factor. As in India, one of the main challenges was the acquisition and internalization of industrial, technological and managerial knowledges. As in Japan, the State wished to ensure systemic efficiency in communication, coordination and transactions amongst private enterprises, recipient of rapid knowledge accumulation. For these reasons the protagonist in Korea growth was an emergent community of public technocrats, who acted as the architects in designing and realizing the national innovation system. Choi examines the nature and role of the technocrats of Korea Industrial Complex Corporation (KICOX), a public corporation established in 1974 for the promotion of industrial development. KICOX chose a particular region, Changwon, a sort of natural fortress in the south-east of the Korean Peninsula, and encouraged several companies, including Hyundai, Samsung, LG and Doosan, to form there an ambitious industrial hub. At the beginning these firms worked in general and precision machinery sector, but in over 40 years of success, they addressed their productions towards high-tech sectors so much that the Bloomberg Innovation Index in 2010 ranked South Korea as the world's most innovative country, first in business R&D intensity and patents filed per GDP.

In recent years, the debate stimulated by Mazzucato's challenging book *The Entrepreneurial State* warned us from establishing a rigid dichotomy between private and public sectors when considering innovation. The historical experiences illustrated in our book show that the State's involvement has been wider than investing in heavy capital industries and that it could adopt a visionary risk-taking position by making the long-term investments required in innovation. Nowadays, in the environment of the knowledge economy, the State could one more time act as a catalyst lead investor, where far-sighted innovative investment might be too risky for private sector business, and it could shoulder the needed long-term efforts in education.

In conclusion, the historical comparative perspective offered in these chapters could contribute to go beyond the prejudicial narrative polarised between the golden vision and the dark tale of the role of the State in the economy.

State and Enterprise: The Case of SOEs in Europe in the Twentieth Century

Franco Amatori

Abstract State-owned enterprises (SOEs) had a great relevance along the twentieth-century history of European economies. A very important issue is the role played by politics in the various European states. In the strong core of European capitalism, SOEs managed by the "right hands" enjoyed a substantial amount of independence. But at the dawn of the current era of globalization, SOEs declined in most European countries.

Still, in the early twenty-first century, we have seen a rebirth of SOEs in new lighter forms: the government acts more as a regulator and advisor than as a direct protagonist.

Keywords State-owned enterprise • State intervention • Public managers

JEL Classification L32 • N48 • N24

The goal of this chapter is to offer a context to the actions undertaken by managers of public enterprises. It will be limited in space, time, and the variety of topics. I am going to focus on the twentieth-century Europe where state-

F. Amatori (✉)
Department of Policy Analysis and Public Management, Bocconi University, Milan, Italy

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_2

owned enterprise (SOE) was seen as being something different from just an appendix of the public administration and bureaucracy. In this second form, firms were not even public concerns. The latter were considered as economic entities that operate in a condition of monopoly while the SOE that I want to discuss faces market competition.

In the twentieth-century Europe, these firms could be found all over—from Sweden to Spain, from the UK to Italy.[1] Certainly they were widely diffused in the different countries before the outbreak of the Second World War. The most important examples could be found in the Weimar Republic of Germany when both the central Reich and the regional states (Länder) expanded their field of direct intervention. The central state and the Länder not only managed wide sections of public service but also engaged in industrial production in sectors like chemicals, metallurgy, and food. In 1925, more than 1 million workers were employed in the productive structure of the Reich and 400 thousand in the firms of the regional states. These activities were usually undertaken under the form of corporations such as Vereinigte Industrieunternehmungen AG (VIAG) (electro-machinery and aluminum) and Vereinigte Elektrizitäts und Bergwerks Aktiengesellschaft (VEBA) (coal mines). In these initiatives the influence of Walter Rathenau could be clearly seen. He advocated a system of rationalizations and socializations for his nation.[2]

In the remainder of Europe, the experiences of SOEs (even if some were certainly not minor as, for example, British Petroleum, Air France, and Hoogovens) were more isolated. Certainly, they were reinforced by the crisis of the 1930s with all the doubts about the efficacy of market mechanisms that the crisis provoked.[3]

In the UK, the State intervened in sectors like transportation and communications; in France, as the leftist government went to power in 1936, it began nationalizing railways, the armaments industry, and in part Banque de France; in Germany, the State found itself partner of the Gross Banken, and, with Nazi autarky, it ended up controlling the entire national economic system.[4]

As is well known, the great season of SOE in market economies happens in the period after the Second World War. While Germany in some way had to resolve the heavy heritage of the Third Reich (Hermann Göring's Steelwork, Volkswagen and Montana, a real-war conglomerate), it was in the UK where everyone was familiar with the Beveridge Report and in France, a nation

[1] Chandler et al. (1997).
[2] Wengenroth (2000).
[3] Chandler (1990).
[4] Fear (1998).

characterized by Jean Monnet's Plan de Modernisation, that you best see the systematic philosophy of State intervention.

The final goal was to remove sectorial imbalances in order to sustain a form of development that would bring about full employment as well as battle monopolies and positions of rent. Clement Attlee, Prime Minister of the UK, started an extensive plan of nationalizations. The Bank of England, the railways, internal navigation, gas as well as coal and steel were all affected by the process. In a similar way, in a France politically dominated by an alliance between General De Gaulle's followers and the leftist parties, the State pushed banks, insurance companies, air transportation as well as 20 % of national industry that included Renault and the top ranking aircraft engine manufacturer Gnome *et* Rhône (after the war both were charged with having collaborated with the Nazis) into the public sphere. In successive labor governments in the UK new ways of nationalization continued, essentially not challenged by the conservative party until Margaret Thatcher's rise to power.[5] In the France of the 1980s, we see a wave of nationalizations piloted by its socialist president, François Mitterrand, but this phase did not last more than four years (1982–1986).

In the end, the motivations that gave birth to the SOE were different. Sometimes, there were political and ideological reasons. On other occasions, there were pressing social reasons (often regarding employment levels) or economic reasons brought about by market failures. And in countries like Italy, state-owned firms often came about in order to bail out economic activities and to act in an anti-cyclical way. It is true that not always were we in the presence of conscious strategies of long-term scope.

In any case, as much as the impact and the spectrum of activities covered were remarkable, it is possible to say that in the countries that made up the strong core of European capitalism, market values, bureaucratic efficiency, and detachment from politics represented key elements, as evidenced by cases in different periods of time.

In 1914, the British government bought 51 % of the Anglo-Persian (the future British Petroleum), handing over management to a very qualified, Charles Greenway, and choosing to constantly maintain an attitude of benign neglect.[6]

Two years earlier the Netherlands enacted a law that would have a concrete and lasting influence as it called for a rigorous plan of managing and financing

[5] Yergin and Stanislaw (1998).

[6] Chandler (1990).

independence by the government of the semi-public enterprises (semi-public here means State shareholdings).[7]

Volkswagen remained public in the postwar period because no one thought that it could take off. But when the company contradicted the forecasts, the State implemented a spectacular privatization.

Also worth remembering is the case of Japan whose prodigious success (even in a context that sees a very tight relationship between State and big business) was not caused by the utilization of SOE. The State—the legendary Ministry of International Trade and Industry—protected and financially supported enterprises in sectors in which it decided to intervene. At the same time, it compelled them via very persuasive guidelines to compete in the global market.[8]

The goals of *Instituto Nacional de Industria* (INI), which was set up in 1941 as a Spanish version of Istituto per la Ricostruzione Industriale (IRI), the Italian State holding created some years earlier, mirrored the Francoist autarchic policies instead. INI was particularly dynamic between 1945 and 1951, when its president, Juan Antonio Suanzes, also served as Minister of Industry. Just as occurred with IRI, the sectors where INI concentrated its attention were the heavy industrial sectors: oil, electricity, steel, heavy machinery, shipbuilding, chemicals, and also telecommunications and transportation. Suanzes, a naval engineer who had done an apprenticeship at the British producer of steel and armaments, Vickers, was also among the dictator's closest friends. He was absolutely convinced of the necessity for his country to rid itself of foreign interests and to limit production to the demands of its domestic market. Even if INI's companies were active in sectors where wide economies of scale could be exploited, they were afflicted by incurable dwarfism. In 1962, when their impact on the national economy reached its peak, not a single Spanish SOE was on the list of the first 500 firms in the world. Essential functions like marketing and R&D were irreparably atrophied.[9]

But imitating IRI was not limited only to backward countries like Spain. In the 1960s, to members of the British Labour Party disillusioned by a model of nationalizations that was led by competent (but hardly dynamic) civil servants, IRI appeared as the epitome of a competitive public enterprise. In their opinion, this was a form of enterprise that could be effective in fighting off the dominance of American multinationals or, at a minimum, a way

[7] Davids and van Zanden (2000).

[8] McCraw and O'Brien (1986).

[9] Comín and Martin Acena (1991).

for contrasting an irresistible industrial decline.[10] In this way, the Industrial Reorganisation Corporation (IRC) was created in 1966. IRC was a state-owned holding led by managers enrolled in the private sector which took on the task of financing mergers capable of making the national productive apparatus more robust. Ten years later, the National Enterprise Board (NEB) was created. Notwithstanding its lofty ideological goals—to build up the commanding heights of a modern manufacturing and service economy—NEB ended up supervising two "lame ducks" that had been rescued by the State (British Leyland and Rolls Royce), as well as realizing some limited venture capital operations. Neither IRC nor NEB ever reached dimensions comparable to IRI. This showed that while a substitutive Gerschenkronian factor could be very effective in facing the problems of underdevelopment, it was not very useful in coping with those of decline.

What the British Labour Party members found especially appealing about IRI was the fact that the Italian holding extended its field of action to a very wide spectrum of sectors. In this way, IRI became a sure tool that could have an impact on the national economy in its entirety.

In fact, at the peak of its expansion, IRI appeared like a giant conglomerate, a group of enterprises belonging to unrelated sectors, a phenomenon not unusual even in advanced countries. The origins of the unrelated groups can be found in the wish to avoid the trap of saturated sectors, the risk of anti-trust sanctions, and the desire to diversify in domestic market not ready for economies of scale. Of course, there were also reasons related to a particular historical evolution like what occurred in Italy and in Japan.

From the end of the Second World War, we observe two opposite typologies in this respect. On the one side was the American conglomerate and on the other the horizontal Japanese Keiretsu. The dramatic difference was based on the type of control created by top management of the group.[11]

In the American case, the headquarters wanted to decide the strategies of the entire ensemble and to allocate resources among the different companies owned on the basis of financial reports; this is the system known as the so-called management by numbers.

In the horizontal Japanese model, on the other hand, each company's autonomy was almost complete. A firm made its own decisions regarding markets, investments, and time horizons. In this kind of structure, the role of headquarters was replaced by a monthly meeting of the most important companies of the group, offering a useful opportunity for exchanging information

[10] Tomlinson (1999).

[11] Fruin (1992).

between the leaders. Probably, the key central role was exercised by the main bank of the group which permitted the solidity of ownership and made possible the stability of management.

The conglomerate's choice to sever top management from the operative one represents a noticeable element of weakness for America's large corporations while, at least until the 1980s, the keiretsu continued to be a cornerstone of Japanese success.[12]

The lesson we take away from this comparison is that a highly diversified big group needs to be "headless" as much as is possible. Its structure should guarantee a robust autonomy to company leaders. In order to avoid a fracture between a firm and headquarters, the latter needs to maintain limited dimensions and focus on the role of guarantor of the effectiveness of the managerial action.

These were the intentions of the group of policy makers who founded IRI in the mid-1930s. Autonomy for a firm was also an essential ingredient of the most significant results that were obtained in the golden age of Italian State shareholdings in fields like steel, oil, telecommunications, and transportation infrastructures. In those years, the formidable recipe for success was "large state-owned enterprises that are able to compete better than private ones in the market, in the best interest of the country".

In this respect, in 1956 the creation of a Ministry of State Shareholdings that brought along a precise chain of command with politicians on top represented a negative watershed. The arrival of the ministry went hand in hand with the start of the season of "improper burdens" supported ideologically by the ambiguous concept of *economicità* (economic fitness), that is, SOEs pulled between market and social goals, an appealing idea, but unable to resist empirical tests.[13]

Still, it is impossible to assert that a different organizational structure with more appropriate channels of authority and communication would have extended the experience of the "heavy Leviathan" as owner and manager of companies in Italy as occurred in other parts of the world.

Even where the State as entrepreneur reached significant results (as happened, for instance, in the "felix Austria"), it seems that the existence of these big, bulky giants starts to unravel at the end of the twentieth century. Their demise was caused by the objective decline of the SOE's main field of action, by the fiscal crisis of the State, and, above all, by the superiority of large private enterprise in the age of "shrinking space". The dominant technological

[12] Amatori and Colli (2011).

[13] Amatori (2000).

paradigm, its way of acquiring and transmitting information, and its means of transportation were unable to put up with the socio-political constraints that the old SOE simply could not avoid. Simultaneously, Schumpeter both won and lost. He won because today everyone advocates entrepreneurial capitalism. At the same time, however, Schumpeter has lost because he thought that the large corporation was incapable of this kind of entrepreneurial capitalism. The giant has not really died, but, instead, it has become lighter, more flexible, and with its own entrepreneurial vision. It is on this basis that the giant lavishes financial resources on a company, guaranteeing leadership to a management that does not blend economic and social goals. This is particularly true for the economies of emerging nations.[14]

It is inevitable that this kind of action will produce disequilibrium, inequality, and—at least in the short term—unemployment and poverty. In a society where the concept of social solidarity is so deeply embedded, we cannot tolerate this situation. Possibly the only way out today is the Scandinavian way, the so-called flex-security.[15] Flex-security comes together with proper taxation, its particular welfare system, and an extremely proactive labor policy. This is the lesson that we can draw from history. This is the way to cope with the old problems of the interface between society and the economy.

Bibliography

Amatori F. (2000), «Beyond State and Market: Italy's Futile Search for a Third Way», in Toninelli P.A. (ed.), The Rise and Fall of State-Owned Enterprise in the Western World, New York, Cambridge University Press.

Amatori F. – Colli A. (2011), Business History: Complexities and Comparisons, London, Routledge.

Chandler A. – Amatori F. – Hikino T. (eds) (1997), Big Business and the Wealth of Nations, New York, Cambridge University Press.

Chandler A. (1990), Scale and Scope. The Dynamics of Modern Capitalism, Cambridge, MA, Harvard University Press.

Comín F. – Martin Acena P. (eds) (1991), Historia de la empresa pùblica en Espagna, Madrid, Espasa-Calpe.

Davids M. – Van Zanden J. (2000), «A Reluctant State and its Enterprises: State-Owned Enterprises in the Netherlands in the Long 20th Century», in Toninelli P.A. (ed.), The Rise and Fall of State-Owned Enterprise in the Western World, New York, Cambridge University Press.

[14] Musacchio and Lazzarini (2014).

[15] Sciarra (2014).

Fear J. (1998), German Capitalism, in McCraw T.K. (ed.), Creating Modern Capitalism, Cambridge, MA, Harvard University Press.
Fruin M.W. (1992), The Japanese Enterprise System: Competitive Strategies and Cooperative Strategies, Oxford, Clarendon Press.
McCraw T.K. – O'Brien, P. (1986), «Productivity and Distribution: Competition Policy and Industry Structure», in McCraw T.K. (ed.), America versus Japan, Cambridge, MA, Harvard University Press.
Musacchio A. – Lazzarini S.G. (2014), Reinventing State Capitalism, Cambridge, MA, Harvard University Press.
Sciarra S. (2014), L'Europa e il lavoro. Solidarietà e conflitto in tempi di crisi, Rome-Bari, Laterza.
Tomlinson J. (1999), «Learning from Italy. The British Public Sector and IRI», *European Yearbook of Business History*, no. 2.
Wengenroth U., (2000), «The Rise and Fall of State-Owned Enterprise in Germany», in Toninelli P.A. (ed.), The Rise and Fall of State-Owned Enterprise in the Western World, New York, Cambridge University Press.
Yergin D. – Stanislaw, J. (1998), Commanding Heights, New York, Simon & Schuster.

The Boards of UK Nationalised Industries and Their Members c.1950–c.1979

Neil Rollings

Abstract The appointment of board members to private companies has received considerable academic attention. The same cannot be said for state-owned enterprises. This chapter explores the issues raised in the appointment of board members for the nationalised industries in Britain in the post-war period. It shows that such appointments were perceived to be important, but that the appointment process remained flawed and problematic despite numerous attempts at reform. It is suggested that the lack of conformity in perceptions of the role of these boards and the desirable characteristics of a good manager in the nationalised industries stymied these efforts at reform.

Keywords State-owned enterprises • Governance • UK • Post-1945

JEL Classification L32 • N44 • N84

N. Rollings (✉)
School of Social and Political Sciences, University of Glasgow, Glasgow, UK

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_3

Introduction

Until recently it has been common to regard state-owned enterprises (SOEs) as an anachronism. In the context of the ascendency of neoliberal ideas, there was little place for SOEs other than as candidates for privatisation at some stage (Simpson 2013, p. 239; Cook 1997). This situation has now changed with increasing attention being given to SOEs. Two factors lay behind this change. First, the financial crisis knocked confidence in the efficacy of markets and required some failing private companies to be nationalised. Second, and more influential, there was a growing awareness that the most rapidly growing economies in the world often had substantive SOE sectors and with this came increasing interest in the state capitalism. Following from this came recognition that in many developed economies governments still retained SOEs and seemed reluctant to let them go.

Acknowledging the continued significant role of SOEs in economic activity brought renewed interest in the corporate governance of these enterprises (OECD 2005a, b). Mirroring the extensive literature on the impact of company boards in the private sector, there is a belief that the boards of SOEs need to be studied, though it is less clear to what extent these boards matter, in what ways and why (Khoza and Adam 2007; Musacchio and Lazzarini 2014). Likewise, historians have suggested that this renewed interest in contemporary SOEs warrants a reappraisal of their development over the twentieth century (Amatori et al. 2011). However, its relevance to the contemporary position is less clear: Musacchio and Lazzarini argue that there has been a marked shift in the nature of SOEs since the heyday of the traditional "Leviathan as an entrepreneur" period up to the 1970s, where it was the norm for states to maintain 100 per cent ownership. Gradually since then this model has been superseded by two alternatives: "Leviathan as a minority investor" and "Leviathan as a majority investor".

The British case on first sight seems more clear-cut given its notoriety in the rise of privatisation (Parker 2009, 2012). Even though some banks were taken into the state hands (to varying degrees) in the financial crisis and public opinion has seemed favourable to the idea of renationalising the energy industries and the railways (YouGov 2013), there seems little inclination in the main British political parties to develop state capitalism or, more specifically, to move towards a "Leviathan as minority or majority investor"-type model.[1] Thus, Tomlinson (2008, pp. 228–229) has suggested that public ownership in

[1] This may change with the appointment of Jeremy Corbyn as the new leader of the Labour Party, given his commitment to renationalising the railways.

Britain should be seen as "no longer a live political issue … but a historical episode, ripe for retrospective historical analysis and judgement". Yet, to date, that retrospective remains fairly limited in scope and coverage. Tomlinson's article was a response to Hannah's (2004) linkage of the poor performance of the nationalised industries to Britain's economic decline. Millward (2000, 2005, 2006, 2011, 2013), whose works have frequently contributed to the topic in recent years, is less critical of their economic performance, notably with regard to productivity performance. Beyond these works, the recent historiography of Britain's nationalised industries as a group is invisible: one is forced to go back to Ashworth's 1991 account of *The State in Business*. On the other hand, there have been a number of official or semi-official accounts of particular nationalised industries (e.g. Ashworth 1986 on coal, Gourvish 1986 on railways and Hannah 1982 on electricity supply). And more recent contributions have built on these cornerstone works: Jenkins (1998, 2004) on the gas industry, Chick (2011) on the British National Oil Corporation and Buttle (2008) on railways.

Notions of governance of these nationalised industries play an important role in these accounts. In Britain, the model of the (Morrisonian) public corporation was adopted for nationalised industries, based on the example of London Passenger Transport Board (Morrison 1933), but with considerable diversity in the precise structure used: some were heavily centralised from the outset, while others, like gas and electricity, were more devolved to regions, at least in their early years. Each industry had a central board, but of differing sizes and diverse compositions in terms of full- and part-time members and with varied responsibilities, some functional, while others with a broader policy focus. Despite this diversity, there is an agreement in the historiography and in line with the wider literature that one issue was common to all nationalised industries: there was an underlying tension present in all UK nationalised industries over the appropriate balance between the demands of government, be it for social, political or wider economic objectives, and those of commercial sustainability (UK Government 1978, p. 5). The public corporation model implied arm's length government, where the government would provide general direction to the industry's board and the board was responsible for day-to-day management. In practice, the distinction was unclear, and over time, there was increasing intervention from the government to achieve short-term goals (SCNI 1967–1968, p. 190). By the mid-1970s, the relationship between the government and the nationalised industries had become "unsatisfactory" and "in need of radical change" (NEDO 1976, p. 8).

Yet, while there is a consensus that this was a key issue, the way it is presented varies quite markedly in the historiography. Some like Tomlinson (2008), Hannah (2004), Redwood and Hatch (1982), and Mueller and Carter (2007)

emphasise the governments' inability to control the nationalised industries, with boards able to maintain a degree of autonomy which allowed them to opt for a quiet life. In contrast, others, particularly those close to the boards of the nationalised industries, stressed the lack of autonomy and frustration at the level of interference from the government (e.g. Shanks 1963; Heath 1980; Tombs 1980; Pendleton 1997). In reality, the two were not necessarily mutually exclusive (Foster 1972, p. 26): lack of control could lead to "behind-the-scenes, backstairs pressure" (Shanks 1963, p. 8) and even "a pretty dirty game" to ensure that governments got boards to do what the government wanted (Heath 1980, p. 2).

In either case, the position of the boards of the nationalised industries was central in that relationship with central government. However, beyond the accounts of individual industries, there has been a little attempt in the historiography to date to focus on the nature and development of these boards. This piece represents an initial foray into this field. The aim at this stage is not to judge performance but to develop an understanding of changes and continuities over time. In particular, it will focus on the perceived importance of the boards and on the nature of the boards. The ultimate aim is to provide an analysis based on a combination of documentary evidence from the UK national archives and a database of the structure of the boards and their membership over the period 1950–1981, constructed from an annual publication of the boards' composition, along with biographical details about background, and so on, gathered from a range of sources.[2] In this preliminary contribution, the focus is more on the issues raised in the archival material relating to appointments to the boards. The piece begins with a section illustrating the perceived importance of the boards to the operation and performance of the nationalised industries. It then outlines the recurrent concerns enunciated in Whitehall over the period that processes of recruitment needed to be reviewed and reformed in order to improve the quality of those appointments and the efforts to adopt change. All of this may give the impression of government constantly striving to improve the appointment process, but this would be misleading. As the next section shows, there was a clear lack of consensus about what needed to be changed and also there was a clear difference between much of these reforming efforts and the continued reality of the appointment process. As such, the preliminary data on the nature of boards, which has been gathered, points to some changes, but in many fundamental senses, this is a story of continuity and an ongoing inability to resolve perceived failures.

[2] At the very end of the period it became biennial.

Perceived Importance of the Nationalised Industries' Boards

Although the supporting empirical evidence is mixed, it is common to highlight the importance of a company board to the operation and performance of any privately owned company. Thus, when the Cadbury Committee codified UK corporate governance in its 1992 report, its focus was on the role and responsibilities of the board of directors (Nordberg and McNulty 2013). Certainly, there was an awareness among those involved in the appointment process to the boards of nationalised industries that large British companies took the issue of recruitment of top management very seriously (UKTNA 1967). From the 1960s onwards, the companies were developing new selection procedures for directors, and with it the use of search consultants and headhunters became more common (UKTNA 1966a, b).

Similarly, there exist many statements throughout the period under consideration where there is a consistent message emphasising the importance of the boards of the nationalised industries. It is unsurprising that there was a call for appointments of the highest quality, but the reasoning was significant. One argument was the very size of the nationalised industries (Kelf-Cohen 1973, p. 184). One early study, with a degree of hyperbole, went so far as to call the board members "the most powerful group of business managers in the Western world" (Acton Society 1951, p. 4). A quarter of a century later, it was believed that "their task is amongst the most important in the country" (NEDO 1976, p. 8). Another argument was that managing a nationalised industry was harder than managing a large private enterprise (Simon 1957, p. 9). But the most common argument was related to the success or failure of the industry. This "was likely to depend more on the quality of the boards directing the public corporations than on any other single factor" (Robson 1950, p. 135). The same sentiment was enunciated by Lord Simon in 1957 (Simon 1957, p. 11).

This position was frequently asserted in Whitehall too. As the head of the Civil Service Department, Sir William Armstrong put it by the early 1970s, the government made hundreds of appointments each year—the Department of Trade and Industry (DTI) made over 2000 itself—but the most important of these were, in his opinion, the members of the boards of the nationalised industries (UKTNA 1972a). Their perceived importance in Whitehall rested on "their crucial importance to the efficiency and well running of the industries" (UKTNA 1971a). Indeed, civil servants in the 1970s viewed the power of appointment as "the most important single mechanism for effecting

changes in corporations' performance" (NEDO 1976, p. 34). By extension, if the board was crucial, the chair was seen as even more important to the running of the industry (Kelf-Cohen 1973, p. 196; Heath 1980, p. 26; UKTNA 1971b). As the Conservative think tank, the Centre for Policy Studies (CPS) put it in the 1980s, "If the government fails to find a suitable chairman, its whole strategy towards a particular nationalised industry is placed in jeopardy" (CPS 1984, p. 17). This simply restated the views of the permanent secretary of the Ministry of Fuel and Power in 1945 at the outset of the nationalisation programme: the right appointments would determine the success or failure of many nationalised industries (UKTNA 1945a). The Treasury also thought the same: there were two main tools to influence the nationalised industries—the investment appraisal process and the appointment process, and "no matter how well the investment programmes were drawn up, the industries would not be efficient or forward looking unless the right people were appointed to their boards" (UKTNA 1966c).

Given this, it was recognised that it was critical to appoint suitably qualified chairs and board members. In this respect, the appointing minister, the minister of the sponsoring department in government, had a wide degree of discretion in making appointments. The 1946 Coal Industry Nationalisation Act set the criteria for appointment to the National Coal Board (NCB). All the act said was that board members should be appointed by the responsible minister "from amongst persons appearing to him to be qualified as having had experience of, and having shown capacity in, industrial, commercial or financial matters, applied science, administration, or the organisation of workers" (quoted in Chester 1975, p. 468). Nearly 40 years later, the Airports Authority Act 1975, which set up the British Airports Authority, used exactly the same wording with only the addition of one extra criterion for qualification in relation to consumer representation. Ministers could, therefore, appoint from a potentially very wide pool.

Despite this, throughout the period from the late 1940s to the 1980s, a recurrent theme was the difficulty of finding suitably qualified individuals to appoint to the boards. Ministers repeatedly complained about this and the amount of time taken up with making appointments (Kelf-Cohen 1973, p. 189; Chester 1975, p. 540). This might have been expected during the 1970s given the UK's economic difficulties and the expansion of SOEs at that time, but this was regarded as an issue throughout the post-war era. As earlier as 1953, Geoffrey Heyworth, a member of the National Coal Board 1950–1953 and chairman of Unilever 1942–1960, but perhaps best known here as the chairman of the committee which recommended the nationalisation of the gas industry, was complaining about the difficulty of appointing

suitably qualified people (Ramandham 1959, p. 59). It was recognised that good candidates were very scarce (UKTNA 1945b, 1971b). This was particularly true of appointments for chairmen and finance directors (TNA 1975a, p. 5). In addition, by the 1970s, there was a widespread recognition that there had been a tendency to appoint board members from the "stage army" of the "great and the good" (UKTNA 1971c, 1974). Not only was there a tendency to use the same people repeatedly for various government tasks, including the boards of nationalised industries, but also these people were not usually the most appropriate: senior business people had already proved themselves and, it was believed, were not going to take the nationalised industries forward. What was needed were up and coming middle managers, "younger, brighter and vigorous people" (UKTNA 1972b).

Efforts to Reform the Appointment Process

This was not just rhetoric. Many efforts were made to improve the quality of those appointed. The House of Commons Select Committee on the Nationalised Industries was established in 1951 but become far more effective in reviewing the nationalised industries after its reform in 1957. It published reports on aspects of the operations of nationalised industries and studies of individual industries on a regular basis thereafter. Within Whitehall there was a major review of the boards of nationalised industries by a committee of officials in 1960, and thereafter, there were frequent reviews and proposed reforms: in 1966, 1969, 1972, 1973 and 1975 before the key published review by the National Economic Development Office in 1976 (NEDO 1976). Arising from these studies at various points, a Public Appointments Bureau was proposed (but rejected by the prime minister), a group of talent spotters created to suggest potential appointees, an advisory panel was formed to extend the work of the talent spotters and in 1975 a Public Appointments Unit was set up. There was an approach to the Confederation of British Industry too for a list of possible candidates. Related to these developments, there were also numerous initiatives to improve coordination and information on potential appointees between departments in Whitehall. Other reforms included experimentation with the use of search consultants, with mixed results, headhunters and the advertising of posts.

It would be wrong, however, to view this series of initiatives as a sign of innovation and successful improvement. Rather, it was the opposite. There was a sustained recognition that the appointment process was failing and needed to be improved, but that each change had little substantive impact

on the problem. Other issues remained unresolved or only dealt with superficially. The terms of service was one problem with issues about pensions, superannuation and the lack of perks associated with equivalent positions in the private sector (Chester 1975, pp. 529–530; UKTNA 1979a, p. 9). More substantively, insecurity of tenure was a concern. Full-time appointments tended to be made for five years and part-time for three. These could be renewed, but there was no certainty, and this was contrasted with the position in private business, where, it was suggested, once someone was appointed to the board of directors they were likely to stay there until they retired (Simon 1957, pp. 30–31). However, most complaints were related to salaries. Initially, the government was concerned that salaries should not be seen as excessive and actually reduced some of them in 1950 (Chester 1975, pp. 520–528). The result was that there was a lasting impression that salaries were too low, certainly compared to private business. Part-time members had their annual salaries increased to £ 1000 in 1958, but it then stayed at that level until 1978 (Ashworth 1991, p. 72), despite marked inflation—the Retail Price Index had increased by nearly 300 per cent over this period. Such "derisory" payments meant that a sense of public duty rather than remuneration was the key motivation for such part-time members (Kelf-Cohen 1973, p. 192). The problem was even starker for full-time members who were expected to give up any other paid positions that they held. Gradually, this stipulation was eased and full-time board members were allowed to hold some outside directorships, but these had to be approved by the relevant minister, and for much of the period, the associated fees had to be paid over or, later, were capped. Table 1 sets out the salaries of the board members of the National Coal Board for illustration. Even with the salary increase of the late 1950s, taxation and inflation meant that net salary payments were often lower than those of the late 1940s in a context of rising affluence (Simon 1957, p. 32). And they fell even further behind those available to the board members of large privately owned companies.

There were occasional exceptions made for particular appointments. In a desire to attract those from outside the nationalised industries to lead what were seen as failing nationalised industries, the cap on salaries was ignored in some cases in the early 1960s. Most notable here was the appointment of Dr. Beeching to chair the British Railways Board at a salary of £24,000 per year on a five-year secondment from Imperial Chemical Industries (ICI), where he was a director. This kicked up a storm at the time as the next highest salary of a nationalised industry chair was £10,000 per year. But this was an exception. Peter Parker, a later chairman of British Railways (1976–1983), was appointed on a salary below that of Beeching, equivalent to only a third

Table 1 National coal board member salaries 1950–1981 (£)

	1950–1957	1957–1964	1964–1969	1969	1970	1971	1972	1974	1976	1978	1980	1981
Chairman	8500	10,000	12,500	15,000	20,000	20,000	22,500	22,750	23,100	25,890	48,000	51,360
Deputy chairman	7500	8000	10,000	12,000	15,000	16,000	18,500	18,750	19,100	21,490	39,650	43,335
Full-time member	5000	7500	7000/9500	7700/ 10,450	10,000/ 15,000	10,000/ 15,000	12,000/ 17,000	12,250/ 17,250	12,501/ 17,500	15,001/ 20,000	25,001/ 35,000	30,001/ 40,000
Part-time member	500	1000	1000	1000	1000	1000	1000	1000	1000	3670	3670	<5000

Source: Various annual Public Boards: Lists of Members of Public Boards of a Commercial Character, London, HMSO

of Beeching's salary in real terms. Worse followed for Parker as for four years there was a wage-freeze imposed on the salaries of these chairs and other board members. It was often the case that chairmen moving from the private sector saw a massive reduction in their salaries. Parker himself gave up a salary of £65,000 a year for one of £23,300 for the pleasure of running British Rail (Gourvish 2002, p. 28). Nor was Parker alone: Sir Peter Menzies' salary fell from £52,000 to £20,000 when he became the chair of the Electricity Council (UKTNA 1972c). Yet there was still an argument over whether he should be allowed to keep on any of his part-time outside directorships. After some debate he was allowed to keep the income of £3750 from two outside directorships. Within the Treasury, in some ways ironically given its role in controlling public expenditure and holding down public sector wage increases, there was frustration that other departments were reluctant to pay higher salaries to get better candidates given the far greater financial cost to the economy and the government of these industries performing poorly.

For the effective management of the nationalised industries holding down the salaries of those at the top only created further long-term difficulties. It was often stated that the majority of board members should come up from within the industry (UK Government 1960, paragraph 33; Simon 1957, p. 10). Such insider appointments were viewed as far easier to make and these did make up the majority of appointments (e.g. 80 per cent in the mid-1970s). It was often suggested in Whitehall that the ease of making such appointments showed that salary was not an important issue in most appointments. Rather, it was argued, with such internal promotions, it was notions of career progression that mattered. Moreover, in some nationalised industries, senior executive salaries were kept below those of full-time board members. But this was not true in all nationalised industries. In some cases senior managers were known to turn down promotion to their industry board because of the combination of greater job insecurity and a lower salary associated with board membership: in 1975–1976 14 senior executives were paid over £20,000 in the British Steel Corporation, a salary matched by only three of five full-time board members (excluding the chairman) (NEDO 1976, p. 35).

There were also lasting problems with the appointment process itself despite the efforts to improve it. Building on wartime experience, the government expanded its "Great and the Good" list after the Second World War, but those included were usually only suitable for part-time appointments so a new list was created (Chester 1975, pp. 544–546). Clearly this was urgently needed—of the 60 names on a Ministry of Transport list of possible members of the new British Transport Commission only one was actually appointed (Ashworth 1991, p. 70)—but despite the need for a list of potential candidates, such lists

still remained flawed on a number of levels. One problem was that responsibility for appointments lay with the sponsoring department—for some, like Barbara Castle as Secretary of State for Transport, this meant the prospect of 25 full-time and 160 part-time appointments in three years, but for others, an appointment might be quite rare. Even in those departments making regular appointments, the machinery was at best faulty and often non-existent (CPS 1984, p. 3). Attempts were made to centralise information: in the Treasury initially and, from 1975, in the Public Appointments Unit of the Civil Service Department. Then the Cabinet Office created the Central List to supplement departmental lists. However, this did not resolve the underlying issue with criticism that the unit was too passive and that its information out of date (CPS 1984, p. 4). The information was also a mixture of factual—positions held—and judgemental—personal comments about the perceived abilities of the individual—rather than providing some reasoned exploration of their performance and potential as managers. As some in Whitehall recognised, civil servants were not necessarily the best people to judge who would make a good board member of a nationalised industry rather than an effective member of some advisory committee.

There was also a problem about members being given inadequate notice. The Nationalised Industries Chairmen's Group's (NICG) submission to the Select Committee on Nationalised Industries in 1979 gave two examples of recent bad practice (UKTNA 1979b). First, one part-time member had not been told if his position was being terminated or renewed at what might have been his last monthly board meeting. Second, a chair's replacement was only settled 11 days before the chairman's position came to an end. The NICG submission ended with a clear expression of the group's sense of frustration in a section entitled "The Courtesies":

> The fact that ministers and officials have all too often failed to appoint or reappoint in good time, not only executive and non-executive members, but also chairmen and deputy chairmen, is a matter which has caused corporations much unnecessary disturbance. In the last resort, however, what is more disturbing than the disruption caused by these delays are the doubts which they engender about what importance ministers really attach to the boards of the public sector corporations – doubts which are exacerbated by the fact that many issues concerning board appointments are often dealt with by officials who are not of senior rank.

John Heath, an expert on the nationalised industries at the London Business School, agreed, in his view, "the whole appointments system was a disgrace and needed thorough overhauling" (UKTNA 1979c). Indeed, it was his 1974

proposals to revise the appointment process to make it more systematic that induced Whitehall to look once more at the issue, though again with limited results.

Here in many ways lay the underlying problem. Despite many efforts to improve the process, all too often appointments to the boards were rushed and based on insufficient care. However much there was a desire in Whitehall to change, the reality remained steadfastly prone to anything but a systematic and thorough process. Frequently, departments with knowledge of an individual were not consulted or given very little time to respond (UKTNA 1966d). Often this did not matter as there was no dispute over the individual (e.g. UKTNA 1965, 1972d), but overall the process was haphazard and prone to mistakes. Michael Shanks, the economic writer and journalist who joined the Department of Economic Affairs in the 1960s, was "struck by the apparently slap-happy process by which such appointments [to the boards of nationalised industries] seem to be filled", "relying on an informal and inevitably fallible 'old boy' network" (UKTNA 1966e). Significantly, this practice did not just contrast with the more systematic recruitment processes in private industry but also within the government. Kenneth Stowe became aware of this when he began working for the prime minister: "Since joining no. 10, I have been impressed by the way in which the requirements of Church appointments are analysed and proposals evolved through a well-ordered system of consultation … And I contrast this with the superficial, not to say casual, way in which appointments in the public sector are presented to you" (UKTNA 1975b). Equally, at times ministers were at fault. Thus, when the Treasury asked the DTI why it had not been consulted over the appointment of the new chairman of the British Steel Corporation, Monty Finniston, they were astounded to discover that not even the Iron and Steel Division of the DTI had been consulted (UKTNA 1973).

Inevitably, in these circumstances poor appointments were made. There were, for example, long-standing criticisms of the quality of management on the Electricity Council—"a deplorable record"—and the British Waterways Board—"a weak board"—and a dossier of cases of incompetent management was drawn up (UKTNA 1971b, 1966f). Perhaps the most vehement criticism was over the appointment of the chair of the South of Scotland Electricity Board. In 1966, the Treasury and the Ministry of Power approached the prime minister arguing against the candidate proposed by the Secretary of State for Scotland (UKTNA 1966g). The experience of a previous incumbent may have played a role here: although in many respects a minor board compared to some of the other nationalised industries, its investment programme was substantial—about a half to two-thirds the size of that of a major UK

multinational enterprise like Courtaulds. That it had been chaired by a sick man who did not speak to his deputy chairman was believed to have had disastrous results (UKTNA 1966h). Thus, it is clear that the efforts to reform the appointment process for nationalised board members were driven by the need to improve the selection process, but that these efforts provided little perceived success and a growing sense of sustained failure.

Nature of the Boards

One of the main reasons for the failure of the various reform efforts and the continued problems in appointing board members was the lack of consensus about the desired nature of the boards. This can be found in the historiography but was also visible within Whitehall at the time. One obvious issue given the public corporations' location between central government and private business was the appropriate comparator model on which to frame the boards and, later, their reform. For some, like Sir Arthur Street, deputy chairman of the NCB in the late 1940s and previously a career civil servant, the answer was straightforward: they would be part of a "a new industrial civil service" and "they must be capable of carrying responsibilities which are crushing in comparison with those normally to be met within the commercial world" (Street 1947, p. 16). Similarly, some civil servants made clear their belief that ultimately board members were public servants and should be treated as such, be it in terms of pay, conditions or managerial responsibility.

However, for the majority it was the private corporation that represented the appropriate model on which to base the boards of the nationalised industries. Heath (1980, p. 3) thought that although there were differences between the public and private sectors, the relationship between the government and the nationalised industries was strikingly similar to that of a conglomerate-holding company. Others made more direct comparisons of the managerial functions involved. Sir Francis Tombs (1980, p. 6), chairman of the Electricity Council, believed in 1980 that "the management tasks were remarkably similar" having had experience of both. However, the National Economic Development Office's study five years before had warned that this was a trap for nationalised industry managers: "Board members and managers in public corporations sometimes give the impression of failing to recognise that public ownership may require modifications in management style in comparison with private sector practices" (NEDO 1976, p. 40).

Yet it was not just board members who saw this analogy. It became quite common to argue that with large private companies increasingly aware of

their social responsibilities, managing a large corporation was little different in the public and private sectors (Hanson 1962, p. 1; Shanks 1963, p. 301). Similarly, Simon argued that the way to improve the NCB was to restructure it on the lines of ICI while others simply talked about large-scale enterprise with no distinction between public and private ones (Simon 1957; Milward 1950). Moreover, this analogy had a direct impact at times. For example, the Benson exercise in the late 1960s was undertaken by management consultants to improve information flows and relations between the boards and the respective sponsoring departments by drawing up long-term corporate plans. Significantly, the initial framework adopted by the consultants as a starting point was that of a large holding company (UKTNA 1970). Likewise, this was the model underpinning McKinsey's consultancy work for a number of nationalised industries in the 1960s and 1970s.

What is less clear is whether this had any impact on the type of individuals appointed to the boards of the nationalised industries. Certainly at the end of the period, reports by the Central Policy Review Staff (*The Economist* 1981, p. 21) and the CPS (1984) both argued for a streamlining of the boards with far higher proportion of part-time non-executive directors from private business in order to make them more entrepreneurial. More generally, there were ongoing debates about the most suitable structure of the board—functional or policy-orientated, for example. Other recurring issues were whether there was an appropriate balance between full- and part-time members, whether the boards were dominated by engineers or managers, and the appropriate size of the boards. The answer to each of these issues was likely to impact upon the attributes viewed as desirable in candidates for appointment to the boards.

As a starting point to addressing these issues, the following tables are presented to illustrate the situation at the start and end of the period under consideration with regard to the make-up of the boards. The data is not exactly comparable, but in the light of the discussion of the largely failed attempts to improve the appointment process, it does give some indication of particular continuities and where there were changes. Table 2 shows the clear shift to part-time members. Equally, in many other respects, as would be expected from the story outlined above, there is clear evidence of continuity. For example, there is little sign of streamlining by 1984: none of the boards shown are smaller in 1984 than in 1950.

Similarly, Table 3 shows that apart from the railways there was little reduction in the average age of the board members given. This is despite complaints in the early years of the nationalised industries that the appointments tended to be conservative and often of relatively old men. Added to the desire to appoint younger up-and-coming managers, it might have been expected that

Table 2 Breakdown of some nationalised industry boards, 1950 and 1984

	1950			1984		
	Total	Full-time	Part-time	Total	Full-time	Part-time
Gas Council/British Gas	12	8	4	12	7	5
NCB	12	7	5	10	4	6
Iron and Steel Corporation/British Steel Corporation	7	5	2	10	4	6
Railway Executive/British Railways	7	7	0	11	4	7
Docks and Inland Waterways Executive/British Waterways	5	4	1	8	0	8

Source: Acton Society Trust (1950) and CPS (1984)

Table 3 Average age of members of the boards of national industries, 1950 and 1984

	Average age 1950	Average age 1984	
Gas Council	51	British Gas	55.7
British European Airways (BEA)/British Overseas Airways Corporation (BOAC)	54	British Airways	60.4
NCB	58	NCB	59.2
Railway Executive	60	British Railways (BR)	50.4

Source: Acton Society Trust (1950) and CPS (1984)

there would have been some change. Turning to the background of board members, Table 4 shows the large reduction of trade unionists on the boards and the rise of banking and finance as one might expect, but broadly again the story is of a degree of continuity.

Conclusion

It is clear that throughout the post-war period ministers, civil servants and contemporary commentators appreciated the importance of making the right appointments to the boards of nationalised industries. Nor was this just rhetoric: innumerable studies examined the topic and an almost continual process of reform of the way appointments were made occurred. Yet, that this was such a constant process of reform illustrates sustained failure to grapple successfully with the problem despite all the time and effort spent addressing it. Why was it that the underlying problems with the appointment process remained unresolved? One possible explanation is that the appointments made were not as poor as perceived at the time. The problem was that the nationalised industries had such a public profile and the boards were faced by such a complex management task that a perception of failure was perhaps inevitable. There may well be something in this. However, this only moves the spotlight

Table 4 Backgrounds of nationalised industry board members, 1950 and 1984

	1950					1984			
	Full-time	Part-time	Total	Percentage		Full-time	Part-time	Total	Percentage
Company directors	13	25	38	38	Industrial management			51	25.8
Managers and engineers	10	4	14	14	Engineering			17	8.6
Trade unionists	9	7	16	16	Banking and finance			20	10.1
Civil servants	4	2	6	6	Accountancy			16	8.1
Accountants	3	1	4	4	Civil service			15	7.6
Armed forces	3		3	3	Trade unionists			8	4.0
Solicitors	2		2	2	Manufacturing			9	4.5
Cooperative movement	1	2	3	3	Scientist			9	4.5
Scientist	1		1	1	Personnel			5	2.5
Unclassified	1		1	1	Agriculture			5	2.5
Local government		7	7	7	Shipping			4	2.0
Journalist		1	1	1	Oil			4	2.0
Banking and finance		1	1	1	Academic			4	2.0
Politics		1	1	1	Armed forces			3	1.5
Agriculture		1	1	1	Marketing			3	1.5
Local government official		1	1	1	Planning/architecture			3	1.5
	47	53	100	100	Law			2	1.0
					Journalism			2	1.0
					Other			6	3.0
					Unclassified			12	6.1
						73	125	198	

Source: Acton Society Trust (1950) and CPS (1984)

somewhat: it is clear that it was very difficult to find skilled candidates willing to take on such a challenging position. Given how static the pay of board members was over time, while equivalent salaries were rising markedly, it is unsurprising that finding suitable candidates was not straightforward even in the context of promotion from within the nationalised industries. That on occasion exceptions were made, most famously for Beeching to move from ICI, only reinforced the impression that other board chairmen and members were not being rewarded and, hence, were not regarded as worthy of a higher salary. Notions of public service must have played an important role in finding candidates willing to join these boards, but, again, this did not necessarily mean that the best managers were being appointed.

To a considerable extent the problem revolved around the lack of clarity about the position of the boards and how they should operate. It was clear that there was interference by government which complicated the management function. However, in other respects, the life of the boards was made easier by being part of the public sector, most notably the lower cost of borrowing. The greater problem which confused the situation was the diversity of the relationships between different nationalised industries and their respective sponsoring department. There was limited coherence and consistency between the interactions across the nationalised industries and across the government. Perceptions of what constituted a good board member, the appropriate management functions of the boards and what model of board structure should be used differed. Since the power of appointment rested with the particular minister responsible for each industry, without consensus on such issues, each ministry developed their own traditions and norms about the relationship with particular boards and with regard to the appointment process. Accordingly, any attempts at centralisation or standardisation of the appointment process could be resisted, ignored or applied in different ways by each ministry. This made it very difficult for any substantive and general reform in the nature of the boards to occur, whatever the degree of consensus about the need for reform.

Bibliography

Acton Society Trust (1950), *The Men on the Boards*, Claygate, Acton Society Trust.

Amatori F. – Millward R. – Toninelli P.A. (2011), «Introduction», in Amatori F. – Millward R. – Toninelli P.A. (eds), *Reappraising State-Owned Enterprise: A Comparison of the UK and Italy*, Abingdon, Routledge, pp. 3–10.

Ashworth W.A. (1986), *The History of the British Coal Industry,* vol. 5, *1946–1982: The Nationalized Industry*, Oxford, Clarendon.

Ashworth W.A. (1991), *The State in Business: 1945 to the Mid-1980s*, Basingstoke, Macmillan.

Buttle G.W. (2008), *A Signal Failure? The Organisation and Management of British Railways 1948–1964*, University of Durham, Ph.D.

Cadbury Committee (1992), *The Financial Aspects of Corporate Governance*, London, Gee and Co.

Centre for Policy Studies (Cps) (1984), *Which Direction? Board Appointments in Nationalised Industries*, London, Centre for Policy Studies.

Chester D.N. (1975), *The Nationalisation of British Industry 1945–51*, London, HMSO.

Chick M. (2011), «Property Rights, Economic Rents, BNOC, and North Sea Oil», in Amatori F. et al. (eds), *Reappraising State-Owned Enterprise: A Comparison of the UK and Italy*, Abingdon, Routledge, pp. 145–163.

Cook P. (1997), «Policy Arena: Privatization, Public Enterprise Reform and the World Bank: has "Bureaucrats in Business" Got It Right?», *Journal of International Development*, vol. 9, no. 6, pp. 887–897.

The Economist (1981), *Think Tank's Damp Squib*, August 8, pp. 20–21.

Foster C. (1972), *Public Enterprise*, London, Fabian Society.

Gourvish T. (1986), *British Railways, 1948–73: A Business History*, Cambridge University Press.

Gourvish T. (2002), *British Rail, 1974–97: From Integration to Privatisation*, Oxford University Press.

Hannah L. (1982), *Engineers, Managers and Politicians: The First Fifteen Years of Nationalised Electricity Supply in Britain*, Basingstoke, Macmillan.

Hannah L. (2004), «A failed experiment: the state ownership of industry», in Floud, R. and P. Johnson (eds), The Cambridge Economic History of Modern Britain, vol. 3, Cambridge University Press, pp. 84–111.

Hanson A.H. (1962), *Managerial Problems in Public Enterprise*, London, Asia Publishing House.

Heath J. (1980), «Management in the Nationalised Industries», Nationalised Industries Chairmen's Group, *Occasional Paper*, no. 2.

Jenkins A.G. (1998), *The British Gas industry, 1949 to 1970: Management Strategies and Government Regulation*, University of Exeter, Ph.D.

Jenkins A.G. (2004), «Government Intervention in the British Gas Industry, 1948 to 1970», *Business History*, vol. 46, no. 1, pp. 57–78.

Kelf-Cohen R. (1973), *British Nationalisation 1945–1973*, London, Macmillan.

Khosa R.J. – Adam M. (2007), *The Power of Governance: Enhancing the Performance of State-Owned Enterprises*, Basingstoke, Palgrave Macmillan.

Millward R. (2000), «State Enterprise in 20th Century Britain», in Toninelli P.L. (ed.), *The Rise and Fall of State Enterprises in Western Countries*, Cambridge University Press, pp. 157–184.

Millward R. (2005), *Private and Public Enterprise in Europe: Energy, Telecommunications and Transport, 1830–1990*, Cambridge University Press.
Millward R. (2006), «Explaining Institutional Change in the Networks: Britain in Comparative Perspective 1945–90», in Clifton J. – Fuentes D. – Comin F. (eds), *Transforming Public Enterprise in Europe and the Americas: Networks, Integration and Transnationalisation*, Basingstoke, Palgrave Macmillan, pp. 16–43.
Millward R. (2011), «The Nature of State Enterprise in Britain», in Amatori F. et al. (eds), *Reappraising State-Owned Enterprise: A Comparison of the UK and Italy*, Abingdon, Routledge, pp. 11–30.
Millward R. (2013), *The State and Business in the Major Powers*, Abingdon, Routledge.
Milward G.E. (ed.) (1950), *Large-Scale Organisation*, London, Institute for Public Administration.
Morrison H. (1933), *Socialisation and Transport*, London, Constable.
Mueller F. – Carter C. (2007), «"We Are All Managers Now": Managerialism and Professional Engineering in UK Electricity Utilities», *Accounting, Organizations and Society*, vol. 32, no. 1–2, pp. 181–195.
Musacchio A. – Lazzarini S.G. (2014), *Reinventing State Capitalism: Leviathan in Business, Brazil and Beyond*, Cambridge, MA, Harvard University Press.
National Economic Development Office (Nedo) (1976), *A Study of UK Nationalised Industries: Their Role in the Economy and Control in the Future*, London, HMSO.
Nordberg D. – McNulty T. (2013), «Creating Better Boards through Codification: Possibilities and Limitations in UK Corporate Governance, 1992–2010», *Business History*, vol. 55, no. 3, pp. 348–374.
OECD (2005*a*), *OECD Guidelines on Corporate Governance of State-Owned Enterprises*, Paris, OECD, 2005.
Oecd (2005*b*), *Corporate Governance of State-Owned Enterprises: A Survey of OECD Countries*, Paris, OECD, 2005.
Parker D. (2009), *The Official History of Privatisation*, vol. 1, *The Formative Years, 1970–1987*, Abingdon, Routledge.
Parker D. (2012), *The Official History of Privatisation*, vol. 2, *Popular Capitalism, 1987–1997*, Abingdon, Routledge.
Pendleton A. (1997), «The Evolution of Industrial Relations in UK Nationalized Industries», *British Journal of Industrial Relations*, vol. 35, no. 2, pp. 145–172.
Ramandham V.V. (1959), *Public Enterprise in Britain: Thoughts on Recent Experiences*, London, Frank Cass.
Redwood J. – Hatch J. (1982), *Controlling Public Industries*, Oxford, Basil Blackwell.
Robson W.A. (1950), «The Governing Board of the Public Corporation», *Political Quarterly*, vol. 21, no. 2, pp. 135–149.
Select Committee on Nationalised Industries (1967–1968), *Ministerial Control of Nationalised Industries*, vol. 1, HC 371.
Shanks M. (ed.) (1963), *Lessons of Public Enterprise*, London, Jonathan Cape.
Simon Lord (1957), *The Boards of Nationalized Industries*, London, Longmans.

Simpson S.N.Y. (2014), «Boards and Governance of State-Owned Enterprises», *Corporate Governance*, vol. 14, no. 2, pp. 238–251.
Street A. (1947), *The Public Corporation in British Experience*, London, Institute of Public Administration.
Tombs F. (1980), *The Role of the Nationalised Industries: Based on a Lecture to the Bristol Centre of the Institute of Bankers*, Bristol, Electricity Council.
Tomlinson J. (2008), «A "Failed Experiment"? Public Ownership and the Narratives of Post-War Britain», *Labour History Review*, vol. 73, no. 2, pp. 228–243.
UK Government (1960), *The Reorganisation of National Transport Undertakings*, Cmnd. 1248, London, HMSO.
UK Government (1978), *The Nationalised Industries*, Cmnd. 7131, London, HMSO.
UK Government (various years), *Public Boards: Lists of Members of Public Boards of a Commercial Character*, London, HMSO.
UK National Archives (1945a), T 273/346, A. Johnston to Herbert Morrison (Lord President), Method of Appointment to Boards Operating Socialised Industries and Undertakings, December 6.
UK National Archives (1945b), T 273/346, A. Johnston to the Lord President, November 16.
UK National Archives (1965), T 319/69, Lawrence Airey (Treasury), Note for the Record, December 7.
UK National Archives (1966*a*), T 319/69, Peter Vinter (Treasury) to Louis Petch (Treasury), August 16.
UK National Archives (1966b), EW 1/86, Michael Shanks to Douglas Allen, December 1966.
UK National Archives (1966c), John Hunt, Nationalised Industries Appointments', September 13.
UK National Archives (1966d), T 319/69, Louis Petch, Appointments to Boards of Nationalised Industries, November 18.
UK National Archives (1966e), EW 1/86, Michael Shanks to Douglas Allen, December 16.
UK National Archives (1966f), T 319/69, John Hunt to Peter Middleton, Public Boards, January 12.
UK National Archives (1966g), T 319/69, P.S. Ross to S.P. Osmond, Draft Minute to the Prime Minister, November 21.
UK National Archives (1966h), T 319/69, Nationalised Industries Appointments, note of a meeting held on 26th October 1966, November.
UK National Archives (1967), Patrick Coldstream, Appointments to Boards of Nationalised Industries, February 14.
UK National Archives (1970), POWE 52/437, D. le B. Jones, The Benson Exercise, April 1.
UK National Archives (1971a), T 319/1226, P.E. Lazarus (Treasury) to Gedling, Appointment to Public Boards, April 21.

UK National Archives (1971b), T 319/1226, Lazarus to Gedling, Appointment of Mr Peter Menzies as Chairman of the Electricity Council, September 23.
UK National Archives (1971c), T 319/1226, C.J. Carey, Government Appointments to Companies in Trouble, August 12.
UK National Archives (1972a), T 319/1441, Draft Public Appointments: Nationalised Industries, sent to Sir Douglas Allen (Treasury) for comment, April 25.
UK National Archives (1972*b*), FV 35/19, R. Jardine, Recruitment for Nationalised Boards, December 14.
UK National Archives (1972c), T 319/1441, C.R. Walker, Retention of Outside Income by Nationalised Board Members: Mr. Peter Menzies, March 15.
UK National Archives (1972d), T 319/1441, Robert Marshall to Douglas Allen, May 12.
UK National Archives (1973), T 319/1683, unclear signature on handwritten note, September 10.
UK National Archives (1974), PREM 16/438, John Hunt to Harold Wilson (Prime Minister), July 5.
UK National Archives (1975a), PREM 16/438, Key Appointments in the Public Sector: Report of Special Review Team, sent by Douglas Allen, February 3.
UK National Archives (1975b), PREM 16/438, Stowe to the Prime Minister, *Key Appointments in the Public Sector*, April 24.
UK National Archives (1979a), AN 192/84, Memorandum to Sub-Committee "E" of the House of Commons Select Committee on the Nationalised industries, Association of Members of State Industry Boards, February 14.
UK National Archives (1979b), AN 192/84, John Heath to Sir Peter Parker, Chairman British Railways, February 1.
YouGov, https://yougov.co.uk/news/2013/11/04/nationalise-energy-and-rail-companies-say-public/, 2013, [accessed February 3, 2015].

The Managerial Revolution in Italy. The Managers of IRI (1945–1970)

Daniela Felisini

Abstract This chapter aims to analyze the managers of Istituto per la Ricostruzione Industriale (IRI)—the major State-owned industrial holding and the most prominent example of managerial capitalism in the history of Italian economy—in the significant period of the so-called Golden Age.

The analysis is founded on a data-set concerning top and middle managers (education, military service, political and religious affiliations, recruitment and career), built intertwining a multiplicity of original sources. Based on empirical evidence, the chapter aims to get a deeper understanding of some of the crucial issues in the identity and action of State-owned enterprises' (SOEs') managers, mainly the complex relationships with the government and the political milieu.

Keywords State-owned enterprises • Public managers • IRI • Technocracy

JEL Classification N44 • L32 • D73 • N84

D. Felisini (✉)
Department of History, Humanities and Society, University of Rome "Tor Vergata", Rome, Italy

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_4

Introduction

The global economic and financial crisis started in 2007 has strongly implicated and re-legitimized State intervention. This recent revival of State's role in the economy finally allows business historians to reflect on public sector firms in current and previous seasons. Various countries all over the world have substantial portions of their productive assets managed by SOEs, and this encourages researches about the models of corporate governance and the managers of those companies.[1] Moreover, the peculiar Italian case, marked by a long decline of big business, in which State-owned enterprises (SOEs) represented a considerable portion, asked for a reassessment of SOEs' ventures.[2]

The managers stay at the core of the debate: over the years, authoritative scholars highlighted the relevance of the quality of the boards in the running of SOEs,[3] and recent studies try to evaluate if and how CEOs and their backgrounds matter in terms of enterprises' performance,[4] so reinforcing the usefulness of a wider historical knowledge of public managers.

This chapter aims to look into the history of the managers of Istituto per la Ricostruzione Industriale (IRI) - the major State-owned industrial holding and the most prominent example of managerial capitalism in the history of Italian economy—in the significant period of the so-called Golden Age. Of course, the analysis need to take into account also the previous generation of managers who ran IRI in the years between its foundation (1933) and the end of World War II, due to the evident continuity of their role.

During the Golden Age, IRI became one of the main actors of Italy's "economic miracle", controlling a large number of firms which played a crucial role in basic industries, infrastructural networks and manufacturing, and acted as front-runners of organizational and technological innovation.[5] But at the turn of the 1970s, IRI began its long decline, due to international and domestic factors; the latter also related to managers' strategies and attitudes.

The chapter is founded on a database (a set of related data organized according to a relational structure) containing information about education, military service, political and religious affiliations, recruitment and career of top and middle managers. The information has been collected intertwining the documents of the huge IRI historical archives with a wide range of other

[1] Among others: Vernon R. and Aharoni (1981); World Bank (1996); Toninelli (2000); Milward (2013); Musacchio A.and Lazzarini (2012).

[2] De Cecco (2004).

[3] Among others: Lewis (1980); Hannah (1982); Vernon (1984); Dornstein (1988); Asworth (1991).

[4] Bertrand and Schoar (2003); Musacchio et al. (2012).

[5] Amatori (2013a, b).

sources (institutional documents and directories, personal memoirs, letters and correspondence, newspapers and magazines). The size and the diversification of IRI as a conglomerate allow the construction of a representative sample of various sectors (steel, telecommunications and transport infrastructures, shipyard, car, hightech and others) and functions (about 100 top and middle managers of the holding, the sub-holdings and the most relevant companies).

The biographical data form the fundamental premises to analyse positions and strategies of the managers and to get a deeper understanding of key issues in their very identity: the complex relationships with the government as shareholder and the challenge of finding a balance between the principles of "sound company management" and the social and economic goals assigned to their companies.

Studying the IRI managers could open different paths of exploration, which lead both inside and outside the enterprise. On one side, it is possible to explore within the firm, getting a more precise knowledge of the structure, the organization and the strategies of a large diversified conglomerate as IRI and of some of its controlled firms. On the other side, we are pointed outside the business, shedding light on the making of the ruling class of the Italian economy in the Golden Age, their relational networks and their link with the political *milieu*, unavoidable issue when we talk about SOEs. We could also reflect on the pattern of values and cultures underlying State intervention in the economy and on the role of IRI managers in shaping Italian "mixed economy".

Origins and Mission of IRI

In order to understand the making of its managerial cohorts, it's necessary a brief outline of the origins of the Institute of Industrial Reconstruction. In 1933 the Italian government decided to set up a temporary agency in order to deal with the effects of the 1929 world depression that represented an absolute earthquake in the Italian economy. According to the project of its founders, Alberto Beneduce and Donato Menichella, IRI mission was to restore the large universal banks that came under its control (Banca Commerciale Italiana, Credito Italiano and Banco di Roma), taking over their industrial holdings in strategic sectors (such as steel, mechanical, telecommunications, shipbuilding and maritime transports), and in this way cutting the negativeties between banks and industrial corporations.[6] With the ownership of

[6] Toniolo (1978).

almost 50 % of all the assets listed on the Italian stock exchange, IRI was a giant "loose" conglomerate, operating in different sectors with a prominent position. (Table 1).

At the beginning, IRI was divided in two sections: one focused on financing the firms while the other one tasked with disinvesting, actually restoring distressed firms and selling them back on the market, as attained with Edison, a powerful electric concern, and Bastogi, a large financial holding. But, after four years, this effort of privatization was far to be successful, since in the Italian market capitals and entrepreneurial capabilities were lacking. At the same time, the needs of the autarchic policy of Fascism and the economic sanctions of 1936 drove to the transformation of IRI into a permanent institution in 1937.[7]

It is important to underline that the Institute was not a fascist entity, embedded in the corporatist doctrine. IRI concept derived from the legacy of the economist and statesman Francesco Saverio Nitti, convinced that the only way for overcoming Italian backwardness—and in such way building a cohesive and modern Italian nation—passed through a rapid industrialization process, in which the State had to play an important role, especially from a financial perspective. Beneduce shared this vision and, in the 1920s, dedicated wide efforts in creating State agencies specialized in funding long-term industrial projects that represented significant precedents for IRI experience.[8] Although a reform-oriented Socialist in his thinking, and for this reason not appreciated by the notables of the regime, Beneduce became the most influential economic advisor of Mussolini. After the Great Depression, Mussolini himself gave Beneduce full operative powers for the realization of the "IRI

Table 1 IRI production share in % of Italian Industries – 1933

65% Iron and steel industry
60% Shipbuilding sector
30% Electric power industry
35% Mechanical engineering sector
35% Chemical industry (including synthetic fibres)
15% Cotton industry
35% Banking sector

Source: Elaborated from Saraceno (1956)

[7] Castronovo (2012).

[8] In the early 1920s, there was the creation of Crediop (Consorzio di credito per le opere pubbliche; *Consortium of credit for public works*) and Icipu (Istituto di credito per le opere di pubblica utilità; *Institute of credit for projects of public utility*), see Asso.and De Cecco (1994). In the original project, IRI should not only cope with the effects of the crisis, but it also had the broader goal of giving stability to the financing of the Italian productive system, main problem in the history of industrial capitalism; Cassese (1985, pp. 105–110); D'Antone (2012).

Operation".[9] The initiative had a wide degree of autonomy: the government played its role in setting very broad goals, related to autarchic needs and to the impending war, but did not intervene in management and left the controlled firms quite free to operate according to private businesses criteria.

The new Group was marked by an innovative element of rationalization, based on well-defined sectors; it was designed on three levels: IRI was the holding, controlling the sectorial financial sub-holdings (at least 51 % owned by IRI, but open to the participation of private capital) and, at the bottom of the pyramid, the multitude of operating companies subject to the civil code as if they were private firms. It was a complex structure led by a light but powerful headquarter, and, before the war, three sub-holdings (Stet for telecommunications, Finmare for maritime transportations and Finsider for iron and steel firms).

Recruitment and Training of New Managerial Teams

The founders of the Institute, Beneduce and Menichella, were mainly concerned of ensuring that this complex and diversified Group—encompassing capital intensive firms, strategic for a country that wanted to catch up the industrialized nations—was appropriately managed. In their vision, since private capitalism had failed not only in the lack of capitals but also in strategy and organizational capabilities, the new State-owned companies had to be run by competent teams of managers, enhanced by the new managerial style that IRI aimed to introduce.

Beneduce and Menichella dedicated themselves to high quality recruitment and "created from nothing IRI's top management ranks".[10] On one side, they tested and selected young promising officers: for example, Menichella hired in this way Pasquale Saraceno, graduated at Bocconi University, poised to become a leading figure in the history of the Institute for over 40 years.[11] On the other side, they addressed to men with recognized technical and managerial abilities, who had already worked in companies of strategic sectors as steel and electricity (as Giuseppe Cenzato, Agostino Rocca, an engineer at Dalmine, and Mario Marchesi) or who had run their own business and

[9] Franzinelli and Magnani (2009, pp. 187–238).

[10] Menichella (1997, p. 850).

[11] Felisini (2013). On the recruitment of Saraceno, the original documents are in IRI Historical Archives, Copialettere. Direttore Generale, Corrispondenza dott. Menichella riservata e personale maggio-dicembre 1933, ACS-DG/001.

offered their experience to the public service (as Oscar Sinigaglia, a steel engineer and entrepreneur, active in the bodies of industrial mobilization during World War I). Beneduce and Menichella also hired scientists from universities and research labs (names like Ugo Bordoni, Francesco Giordani and Carlo Calosi). The biographies of those men are meaningful to understand the value system of the first generation of IRI managerial teams. The case of Ugo Bordoni is exemplary: Beneduce persuaded him to flank a successful academic career and research activity with the supervision of telecommunications holding (STET), "to serve citizens and savers". The commitment to public service inspired the first generation of IRI managers, who shared the cultural paradigm of national economic modernization, in which the State has to play a key role. In no other body than in SOE, it was possible to realize such a complete fusion between patriotic beliefs and professional ambitions[12]

Not only the recruitment but also the training of qualified middle managers was considered crucial, so much that the Institute's statute called for 10 % of annual revenues to be invested in training activities. Since 1938, IRI launched large training programs. The welcome speech of Beneduce to the interns helps to understand the rationale of those programs:

> "It doesn't matter if the activities you carry out will lead you to companies that are not controlled by IRI. IRI's goal is to train a selected managerial class aware that not everything is based on experience or intuition, but that the industrial manager must also largely rely on technique and science".[13]

These words suggest a very advanced concept of industrial directors, fully embedded in the international debate of the 1930s. This debate was rooted in the experience of "industrial mobilization" during World War I and was based on the multifaceted concept of technocracy. That is the enhancement of technical skills and the supposed superior capabilities of the technicians in corporate governance and, more broadly, in the governance of the economies.[14] The main references were to the experience of industrial rationalization promoted in Germany by Walther Rathenau, who aimed the foundation of a "new economy", in which the "technical expertise accumulated by large enterprises" could be transferred to all of the economical structure of

[12] Petri (1996).

[13] Beneduce speech at "Corso di preparazione alle carriere industriali per giovani laureati" 1938, IRI Historical Archives, ID/1,1 *ex* 2.

[14] Torstein Veblen and his institutional economics movement played an important role in the development of the concept of technocracy, Veblen (1921); Smyth (1920).

the German nation, while using the political power of the State "to promote the social and cultural development of the nation".[15] In France there was the movement *Redressement Français*, founded in 1925 by the Ernest Mercier, entrepreneur and manager of the electricity and oil sectors. His biography presents many common features with those of a number of IRI managers. Mercier was imbued with national feelings and had the ambition to make France a major industrial power through the movement of "polytechniciens modernisateurs".[16] Similar movements flourished after the crisis of 1929: in the USA, Howard Scott proposed the establishment of the Technical Alliance, meeting the initial favor of the Roosevelt administration. The members of the Alliance—businessmen and scholars with strong academic links, particularly with Columbia University—attributed great importance to technical progress and proposed to replace politicians with engineers, supposed to better equipped in leading the economy.[17]

In this cultural context, there were the theoretical premises for the affirmation of new managers, within a "revolutionary" process of separation between ownership and management. The latter had to be entrusted to corporate executives with a distinct professional identity and the task of mediating between the requests of owners, employees and consumers "in a purely neutral technocracy".[18] It was the advent of "managerialism".[19]

From all these different tendencies, a new type of industrial manager came out; in Italy, these new managers found in IRI the suitable corporate structure for the affirmation of their power and the consolidation of their status. Their expertise has been regarded as one of the distinguishing elements of IRI in comparison with other State bodies born in the Fascist period.[20] Those "technocrats" ran IRI companies as private ones, but at the same time, they stood for the general interest. They followed the Italian tradition in which high qualified technicians worked for public agencies without acting as bureaucrats.[21] This powerful nucleus of an Italian "technocracy" not only fostered strong elements of innovation in the spirit of public sector but also revealed prominent attributes of entrepreneurship.[22]

But which were the features of this Italian technocracy?

---

[15] Rathenau (1976), introduction by Villari L., p. xviii.

[16] Meynaud (1964); Kuisel (1967).

[17] Aikin (1977); Burris (1993).

[18] Berle and Means (1932); Chandler (1977); Noble(1977).

[19] Managerialism was based on the principle that in all enterprises and services, whether private or public, expertise in management must be taught by training and incentives to excel, Enteman (1993).

[20] Cassese (1974); Salsano (2003).

[21] Melis (2010).

[22] Salsano (1987).

The Database: Profiling a National Technocracy

The top managers of the Group, at least for two generations, could personify exactly this new kind of industrial executive, the "technocrat". Sampling from the database: just 3 % of them did not graduate, an extremely low percentage in those years. In the first two generations (the men born between 1880 and 1915), almost 50 % had a degree (MA) in engineering, some of them with very advanced skills, certified by scientific results appreciated in Italy and abroad. The strong presence of the engineers is a feature that can be found in the experiences of public enterprises also in other countries and periods.[23] A noticeable share of those "engineers in the boardroom" had even a double competence, both technical and financial, acquired in their professional careers preceding the recruitment by IRI. There were a consistent number of graduates in Economics (mainly in Accounting and Business Administration disciplines) among whom there was a strong group from Bocconi University. Saraceno was the leader of this "squad" (including Carlo Obber, Gaetano Cortesi and Aldo Serangeli), who stayed at the helm of the Inspectorate for over 30 years. This was the central office of financial control and played a key role in the governance of a Group with such a complex architecture as IRI. The mode of operation of IRI Inspectorate suggests that, beyond the individual traits, common background in education and skills was particularly important in shaping managerial styles and corporate governance.

The information about military service and participation in the two World Wars reveal that most men of the first two generations were highly patriotic: for example, 70 % of the first generation volunteered in the World War I and 50 % had distinguished service. Here are the names of Oscar Sinigaglia, Raffaele Mattioli, Giovanni Malvezzi, Ugo Bordoni, Giuseppe Cenzato, Giuseppe Imbriani Longo and Guglielmo Reiss Romoli. Some of them also acted in technical units (the Army Corps of Engineers) or in the "industrial mobilization" bodies, which practiced—as well as in other belligerent countries—a wide State intervention in the economy.

Those deep experiences had strengthened the "sense of nation" shared by several generations of the Italian ruling classes, even with different ideal orientations, from liberal to catholic one. Fervent nationalistic feelings were also expressed by large components of the Catholic movement; for them, the war was an important opportunity of national legitimacy and fostered a new sense of the State. The Catholics of the following generation, including a significant group of IRI managers (Sergio Paronetto, Pasquale Saraceno, Aldo Fascetti,

[23] See the case of Brazil, Martins (1974).

Giuseppe Glisenti, Silvio Golzio and others), joined the national consciousness with the utopias of the so-called Third way, a new order in the relations between the State, economy and society to be established after 1929 depression. Those men nourished with Catholic ideals their vision of SOE's role in the economic development. The juvenile experiences made by several managers of IRI in various Catholic groups side by side with the future leaders of the major Italian political party of the postwar era (the Christian Democrat, DC) created a profound accordance of economic visions that had a decisive influence in the 1950s and in the 1960s. As we shall see, this accordance with the politicians of the governing party made more difficult the maintaining of managerial autonomy in the relationship with the State-shareholder: a relationship in which "each arrangement must—and inescapably will—reflect the values of the country concerned".[24]

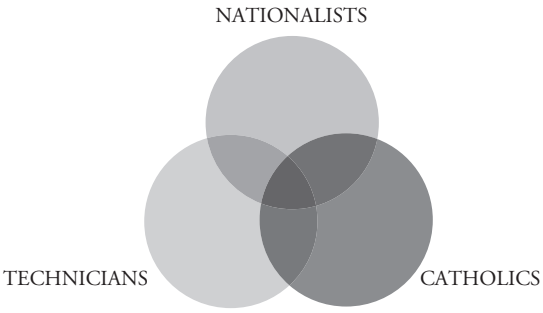
To sum up, the research reveals different profiles in the first two generations, that is possible to schematise in three main typologies: Nationalists, Catholics, Technicians. But all those managers shared, in a very pragmatic way, the same mission: the support of the Country's development through SOE (Graph 1).

Innovation and Continuity in the Golden Age

At the end of World War II, IRI was the object of a dispute that started with the American officers in Italy and arrived strongly into the rooms of the Constituent Assembly. The American occupying forces requested the abolition of cartels and other legacies of the Fascist era. But Donato Menichella (General

Graph 1 Typologies of IRI managers 1933–1970

In order to define IRI managers we have schematised three main typologies; there are evident overlaps between them, with managers easily fitting at least in two of the three typologies.



[24] Vernon (1984, p. 52).

Director and leader of IRI after the death of Beneduce in July 1944) could successfully convince them that the "Beneduce system" offered several points of strength, one of them being the special competencies of the managerial group itself.[25] It was the professional reputation of those managers, combined with their vast networks of relationships—highlighted thanks to the information collected in the database—that allowed them to overcome the intricate transition from the downfall of Fascism to the new parliamentary Republic.[26]

Nevertheless, IRI was the object of heavy criticisms from various quarters. Liberal economists as Luigi Einaudi (Governor of the Bank of Italy 1945–48 and then President of the Republic 1948–55) did not approve SOEs for theoretical reasons, even if he held in high esteem IRI's top managers, so much to call Menichella for the role of Director General of the Bank of Italy in 1946. Private industrialists despised IRI and feared its dominant position and the possible advantages deriving from State ownership. The Left-wing parties did not even like IRI, because it was State-owned but managed with a private sector style, in their opinion quite different from a fully nationalized company.

However, pending a more defined government project for an industrial group of enormous relevance and given the impossibility to privatize the controlled firms, IRI remained at the "commanding heights" of the Italian economy. Thus, the problem of public managerial teams was still crucial. The strength of IRI managerial teams was so clear to overcome not only the purging process, but also the presumable turnover linked to any major political transition and the period of extraordinary administration.

A significant number of IRI managers went through legal purging actions; most of them were discharged. During the procedures it was evident that public and private managers and entrepreneurs, bankers, *grand commis d'Etat* were all part of a "techno-structure" that during the Fascism had established inevitable forms of intermingling with political powers, while using their technical expertise to achieve a proven strategic autonomy.

The technocratic identity and the shared paradigm of national economic modernization were confirmed as two strong elements of continuity in the first decades after the World War II, even in the new framework of Italian participation to an open economy. IRI managers were able to adapt their "dirigiste" (interventionist) approach—in those years variously shared by the ruling classes of the major European countries—to the new internal and international context. They played an active role in the key offices dealing

[25] The memorandum written by Menichella and submitted to Cap. A.M. Kamarck, Officer of the Allied Control Commission, is in IRI Historical Archives, AU, STO/522. The memoir of Kamark is collected in Menichella (1986).

[26] Felisini (2011).

with the economic reconstruction, the utilization of ERP (European Recovery Program) funds and the first European integration.[27]

The dirigistic culture of IRI managers did not prevent them from seizing the opportunities offered by the opening of the markets and to be very receptive to the innovations inspired by the USA.[28] IRI organized frequent training stages in the USA for top and middle managers, in order to get them acquainted with the organization of major corporations in various sectors. The Labor Office, led by Giuseppe Glisenti, attempted to put into practice some of the ideas about industrial labor organization that he had picked up from the American model; these new concepts included productivity drive and human relations, both of which could be blended with Christian social doctrine, in order to build IRI as a laboratory for the development of innovative professional profiles and of a pioneering model of industrial relations.

Moreover, since the 1950s, IRI played a crucial role in bridging the technological gap between Italy and the major industrial countries: using US General Electric technologies, IRI implemented the design and construction of Garigliano nuclear power plant, the first one in Italy operated from 1964 until 1982. In the 1960s the Institute moved on and enhanced its R&D function in high-tech sectors: the experience of Selenia, led by Carlo Calosi, the projects of Saraceno in electronics and the birth of Italsiel were significant.[29]

Managerial Revolution and Italy's "Economic Miracle"

These necessarily short considerations suggest that, in the Golden Age, IRI leadership continued acting as a technocracy engaged in the economic development and modernization of the country. That shared commitment was at the basis of the intellectual coherence and the "esprit de corps" of the management, a pivotal element of the strength of the Institute in the years of the "economic miracle".[30]

Along with the growth of the Institute and the greater articulation of its architecture, new sub-holdings were established: Finmeccanica in 1948,

[27] Bigazzi (1988); Felisini (2012).

[28] Gourvish and Tiratsoo (1998); Kipping and Bjarnar (1998).

[29] Pastorelli (2006); La Vista and Ricciardi (2013). On the role of managers in the adoption of innovation choices see Acemoglu et al. (2006).

[30] The importance of sharing the organization's objectives and the identification with them was highlighted by H.A. Simon, who set such element as empirical postulates to reopen the debate on the efficiency of State-owned enterprises, see Simon (1991).

Finelettrica in 1952 and Fincantieri in 1959. The managerial teams were enlarged, both with new hiring and with training activities. The prevalent practice of interlocking directorate, both direct and indirect, allowed to create horizontal links (between firms of the same sector) and non-horizontal ones (between firms operating in different sectors), so feeding the exchange of information and, therefore, the coordination between the various sectors of the huge conglomerate. It also allowed to build in a "culture of the organization", which played an important role in the management team's history.

Actually, the strength of IRI managers consolidated in the long phase of "benign neglect" practiced in 1948–1954 by the centrist governments, that allowed them to run the companies with a significant degree of autonomy.[31] The headquarters played an important role as a financial guarantor both toward the government and the capital market and credit institutions, at national and international level. IRI was partially funded by the government, but, at the same time, it was able to collect resources from the capital markets for innovative projects (i.e. telecommunications). Many companies of the IRI group were listed, and bonds issued by the Institute were subscribed by private investors (Table 2). These conditions left enough space for the financial autonomy of the management.

In the Golden Age IRI managers had large funds to implement relevant undertakings:: the execution of Sinigaglia Plan for continuous cycle steel plants, the development of the telecommunication system, the construction of the Autostrada del Sole and the manufacture of automobiles like the Giulietta, which came to symbolize the Italian *savoir faire*.

Table 2 IRI financial resources 1949–1973 (in % of the total)

	1949–1955	1956–1962	1963–1973
State endowment funds	8.2	10.3	13.8
Private shareholders	9.2	12.6	2.5
Bonds	25.6	19.5	13.1
Special operations (ERP et al.)	11.7	2.4	17.4
Medium and long term loans	23.3	33.9	32.8
Short term loans	17.5	15.9	20.0
Asset sales and other	4.5	5.4	0.4
Total (%)	100.0	100.0	100.0

Source: Elaborated from Marsan (1982)

[31] Anastassopoulos (1977).

In that phase, IRI managers could combine, even if not in all sectors, the dual obligations of public interest and efficient business performance. IRI not only acted, as we have already mentioned, as a front-runner of organizational and technological innovation, but it also played a crucial role in basic industries, infrastructural networks and manufacturing.

The Beginning of the Decline

But in the second half of the 1950s, these conditions started to change. The leaders of the government coalitions changed their attitude toward SOEs, and IRI model was called into question. The power of IRI "technocracy" drew new attention: it was considered too great and unconstrained in terms of control by the government. The new Ministero delle Partecipazioni Statali (Ministry of State Shareholdings) was established in 1956: though not terribly influential, its creation symbolized the government's purpose for a closer control on SOEs.

In the same period, overwhelming new tasks were assigned to IRI firms, aiming to overcome the historical backwardness of the southern regions; according to a law approved in 1957, 60 % of new IRI investments and 40 % of all its new projects had to be located in southern areas. That mission was widely endorsed both by politicians and managers: Pasquale Saraceno himself was one of the leaders of the movement for the development of "Mezzogiorno". But these new goals were not supported by an adequate cash flow in a period of shortage of investment capital, so reducing the margin for maneuver of managers. More and more they were obliged to an unceasing process of negotiations with the government.

In the 1960s, the developmental tasks assigned by the government were more and more interwoven with an increasing direct interference by political parties, which penetrated in IRI companies more deeply than in the past, via a network of patronage linkages and political bargaining, the interface of what has been defined the Italian "corporate society".[32]

That situation provoked confusion of goals in the following generation of managers and growing difficulties to combine the dual and controversial obligations of public interest and efficient economic performances. IRI managers—even with different styles and responsibility—attempted to find an equilibrium, which proved to be difficult and unstable.

The very successful achievements of IRI still in the 1960s allowed to presume that such equilibrium was possible. But as the decade went on, the con-

[32] Cox and O'Sullivan (1988).

tradictions became more and more strident: the slowdown of the economy (1964) and then the interruption of the growth cycle (1969–1970) caused increasing difficulties to many managers in adhering to sound business principles when coping with the expanding political and social objectives assigned to their companies. Pasquale Saraceno proposed the problematic theory of "improper burdens", corresponding to the evaluation of the additional costs and duties of social nature to be included in the balance sheets of State firms. It was a utopian theory, but it removed firms from profit objectives and created a large gap in respect of the market, putting in question the very identity of Italian public managers.

During the crisis of the 1970s, IRI managers—empowered by the positions conquered during the "economic miracle"—were late in reading the symptoms of the crisis of the world market in sectors that were at the core of recent IRI investments (steel, automotive and shipyards). Moreover, they had to cope with the harsh new climate of industrial relations and its negative consequences in terms of a severe drop in productivity compared with increased labor costs. Actually, the governments imposed to SOE's a fundamental role in the maintaining of social stability during a troubled political season, expanding measures to keep workforce unchanged and to acquire distressed private firms in order to cope with rising unemployment.

This mix of overwhelming economical problems and social tasks paralyzed IRI managers. The character of the technocratic managerial revolution was distorted, opening the stage for the long decline of the SOE and its culture.

Bibliography

Acemoglu D. – Aghion P. – Zilibotti F. (2006), «Distance to Frontier, Selection, and Economic Growth», *Journal of the European Economic Association*, 4(1), pp. 37–74, March.

Aharoni Y. (1986), *The Evolution and Management of State Owned Enterprises,* Cambridge, Ballinger.

Aikin W.E. (1977), *Technocracy and American Dream.* The Technocratic Movement, 1900–1941, Berkeley, University of California Press.

Amatori F. (2013*a*), *L'IRI dagli anni Trenta agli anni Settanta*, Enciclopedia Treccani, Il Contributo italiano alla storia del Pensiero – Tecnica, http://www.treccani.it/enciclopedia/l-iri-dagli-anni-trenta-agli-anni-settanta_(Il_Contributo_italiano_alla_ storia_del_Pensiero:_Tecnica)/

Amatori F. (ed.) (2013*b*), Storia dell'IRI: il "miracolo" economico e il ruolo dell'IRI, Bari-Rome, Laterza.

Amatori F. – Milward R. – Toninelli P. (eds) (2011) *Reappraising State-owned Enterprise: A Comparison of UK and Italy*, Abingdon, Routledge.

Anastossopoulos J.-P. (1977), *The Strategic Autonomy of Government-Controlled Enterprises in a Competitive Economy*, Ann Arbor, MI, University Microfilms.

Ashworth W.A. (1991), *The State in Business 1945 to the Mid-1980s*, Basingstoke, Macmillan.

Asso P.F. – De Cecco M. (1994), *Storia del Crediop: tra credito speciale e finanza pubblica, 1920–1960*, Rome-Bari, Laterza.

Berle A. – Means C. (1932), *The Modern Corporation and Private Property*, New York, Macmillan.

Bertrand M. – Schoar S.(2003), «Managing with Style: The Effect of Managers on Firm Policies», *Quarterly Journal of Economics*, 118(4), pp. 1169–1208.

Bigazzi D. (1988), «L'ora dei tecnici: aspirazioni e progetti tra guerra e ricostruzione», *Storia in Lombardia*, n. 2–3.

Burris B. H. (1993), Technocracy at Work, Albany, State University of New York Press.

Cassese S. (1974), *Problemi della storia delle partecipazioni statali*, in Id., *La formazione dello Stato amministrativo*, Milano, Giuffré.

Cassese S. (1985), *Gli aspetti unitari degli statuti degli enti di Beneduce*, in Id., *Alberto Beneduce e i problemi dell'economia italiana del suo tempo*, Rome, Edindustria.

Castronovo V. (ed.) (2012), *Storia dell'IRI*, vol. I, *1933–1948. dalle origini al dopoguerra*, Rome-Bari, Laterza.

Chandler A.D. Jr. (1977), *The Visible Hand: The Managerial Revolution in American Business*, Cambridge, MA, London, Harvard University Press.

Cox A. – O'Sullivan N. (eds) (1988), *The Corporate State. Corporatism and the State Tradition in Western Europe*, Aldershot, Edward Elgar.

D'Antone L. (2012), «Da ente transitorio a ente permanente», in Castronovo V. (ed.), *Storia dell'IRI*, vol. I, *1933–1948. Dalle origini al dopoguerra*, Roma-Bari, Laterza.

De Cecco M. (2004), «Il declino della grande impresa», in Toniolo G. – Visco V. (eds), *Il declino economico dell'Italia. Cause e rimedi*, Milano, Bruno Mondadori.

Dornstein M. (1988), *Boards of Directors under Public Ownership: A Comparative Perspective*, Berlin-New York, De Gruyter.

Enteman W.F. (1993), *Managerialism: The Emergence of a New Ideology*, Madison, WI, University of Wisconsin Press.

Felisini D. (2011), «La continuità nelle banche pubbliche italiane nel secondo dopoguerra: nuove evidenze dalle carte dell'epurazione», in Cova A. – Fumi G. (eds), *L'intervento dello Stato nell'economia italiana: continuità e cambiamenti (1922–1956)*, Milano, Franco Angeli.

Felisini D. (2012), «Les entrepreneurs publics italiens et la construction du consensus vers l'intégration économique européenne», in Preda D. – Pasquinucci D. (eds), *The Evolution of the Consensus to European Integration 1950–2005*, Brussels, P.I.E. Peter Lang.

Felisini D. (2013), «L'uomo dei bilanci: Pasquale Saraceno dall'Iri degli smobilizzi al concetto degli oneri impropri», in Giovagnoli A. – Persico A. (eds), *Pasquale Saraceno e l'unità economica italiana*, Soveria Mannelli, CZ, Rubbettino.

Ferri G. – Trento S. (2010), «La dirigenza delle grandi banche e delle grandi imprese: ricambio e legami», in Barca F. (ed.), *Storia del capitalismo italiano*, Rome, Donzelli.

Fischer F. (1990), *Technocracy and the Politics of Expertise,* London, Sage.

Franzinelli M. – Magnani M. (2009), *Beneduce. Il finanziere di Mussolini,* Milano, Mondadori.

Gourvish T. – Tiratsoo N. (eds.) (1998), *Missionaries and Manager: American Influences on European Management Education, 1945–60*, Manchester University Press.

Hannah L. (1982), *Engineers, Managers and Politicians,* Basingstoke, Macmillan.

Kipping M. – Bjarnar O. (eds) (1998), *The Americanisation of European business: The Marshall Plan and the transfer of US management models*, London, Routledge.

Kuisel R. F. (1967), *Ernest Mercier French Technocrat*, Berkeley, University of California Press.

La Vista F. – Ricciardi F. (2013), «Le nuove funzioni d'impresa: formazione, comunicazione, ricerca e sviluppo», in Amatori F. (ed.), *Storia dell'IRI: il "miracolo" economico e il ruolo dell'IRI*, Bari-Rome, Laterza.

Lewis E. (1980), *Public Entrepreneurship. Toward a Theory of Bureaucratic Political Power,* Bloomington, Indiana University Press.

Marsan V.A. (1982), *L'Istituto per la Ricostruzione Industriale – I.R.I. – Elementi per la sua storia dalle origini al 1982*, mimeo, IRI Historical Archives.

Martinelli A. (1988), «L'imprenditore pubblico», in De Masi D. – Bonzanini A. (eds), *Trattato di sociologia del lavoro e dell'organizzazione*, vol. II, *L'industria*, Milano, Franco Angeli.

Martins C.E. (1974), *Tecnocracia e capitalismo: a política dos técnicos no Brasil*, São Paulo, Brasiliense.

Melis G. (2010), «Amministrazione e dirigismo economico: una storia lunga», in Felisini D. (ed.), *Inseparabili: lo Stato, il mercato e l'ombra di Colbert*, Soveria Mannelli, CZ, Rubbettino.

Menichella D. (1986), *Testimonianze e studi raccolti dalla Banca d'Italia,* Rome-Bari, Laterza.

Menichella D. (1997), *Stabilità e sviluppo dell'economia italiana 1946–1960*, vol. 1, Documenti e discorsi, Rome-Bari, Laterza.

Meynaud J. (1964), *La Technocratie, mythe ou réalité*, Paris, Payot.

Milward R. (2013), *The State and Business in Major Powers*, Abingdon, Routledge.

Musacchio A. – Lazzarini S.G. (2012), «Leviathan in Business: Varieties of State Capitalism and their Implications for Economic Performance», Harvard Business School, *Working Paper,* no. 12–108.

Musacchio A. – Lazzarini S.G. – Bruschi C. (2012), «Do CEOs of State-Owned Enterprises Matter? Evidence from Brazil, 1973–1993», available at SSRN, http://ssrn.com/abstract=2096210 or http://dx.doi.org/10.2139/ssrn.2096210

Noble D.F. (1977), *America by Design: Science, Technology, and the Rise of Corporate Capitalism*, New York, Knopf.

Pastorelli S. (2006), «Lo Stato imprenditore e la qualificazione tecnologica dello sviluppo economico italiano: l'esperienza dell'IRI nei primi decenni del secondo dopoguerra», *Quaderno dell'Ufficio Ricerche della Banca d'Italia*, no. 12.

Petri R. (1996), «I ceti economici dirigenti tra consenso e crisi di regime», in Ventura A. (ed.), *La società italiana dal "consenso" alla Resistenza,* Istituto veneto per la storia della Resistenza, Venezia, Marsilio.

Rathenau W. (1976), *L'economia nuova*, introduction by Villari L., Torino, Einaudi.

Salsano A. (2003), *L'altro corporativismo. Tecnocrazia e managerialismo tra le due guerre*, Il Segnalibro.

Salsano A. (1987), *Ingegneri e politici. Dalla razionalizzazione alla "rivoluzione manageriale"*, Torino, Einaudi.

Saraceno P. (1956), *L'Istituto per la Ricostruzione Industriale*, vol. III, *Origini, ordinamenti e attività svolta*, Torino, Utet.

Simon H.A. (1991), «Organizations and Markets», *The Journal of Economic Perspectives,* vol. 5, n. 2, spring.

Smyth W.H. (1920), *Technocracy*, University of California.

Toninelli P.A. (ed.) (2000), *The Rise and Fall of State-Owned Enterprise in the Western World*, Cambridge University Press.

Toniolo G. (ed.) (1978), *Industria e banca nella grande crisi*, Milano, Etas Libri.

Veblen T. (1921), *The Engineers and the Price System*, New York, Huebsch.

Vernon R. (1984), «Linking Managers with Ministers: Dilemmas of the State-Owned Enterprise», *Journal of Policy Analysis and Management*, vol. 4, n. 1, Autumn.

Vernon R. – Aharoni Y. (1981), *State-Owned Enterprise in the Western Economies*, London, Croom Helm.

World Bank (1996), *Bureaucrats in Business: The Economics and Politics of Government Ownership,* Oxford University Press.

Two Lives Both Parallel and Divergent: Pasquale Saraceno and Giorgio Fuà

Franco Amatori

Abstract These biographical sketches of two well-known Italian public managers highlight both their similarities and their very different visions. The two protagonists acted in a scenario in which the challenge was to fill the development gap between countries. In the 1950s, the main instrument to cope with that challenge was the State intervention. Saraceno remained strictly coherent with this vision; its failure left him in a sort of intellectual desperation. Fuà, instead, was more careful to grasp the new aspects of the Italian economy, leading the way to the discovery of Italy's industrial districts.

Keywords Developmental state • State-owned enterprise • Public managers

JEL Classification N2 • N84 • D73

Pasquale Saraceno and Giorgio Fuà were two of Italy's top civil servants in the decades following the World War II. They were both academicians; Saraceno was a management professor while Fuà taught economics. Saraceno de facto

F. Amatori (✉)
Department of Policy Analysis, Public Management, Bocconi University, Milan, Italy

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_5

spent all his professional life at *Istituto di Ricostruzione Industriale* (IRI) (the State holding that controlled a substantial part of Italian industry) in various positions, as manager and consultant. Fuà had a more diversified career. As an employee, for five years (1954–1959) he headed the research office of *Ente Nazionale Idrocarburi* (ENI), the State holding focused on energy and chemicals, but over the course of all his professional life, he maintained the attitude of a civil servant, dedicated—without any kind of personal interest—to public welfare. He showed this attitude while working for Adriano Olivetti on the publication of a series in economics and then when he was assistant to Gunnar Myrdal at the United Nations. Even after the end of his time at ENI—when he became a university professor—he was not just a teacher but also a sort of entrepreneur for the formation of a managerial and entrepreneurial ruling class.

Europe in the late 1940s and early 1950s was living a period characterized by an effective and intellectual climate in which the State was held in high consideration and was perceived as more important and efficient than anything the free market could undertake. There were three primary reasons: the first was that the war left such a heavy heritage of destruction and ruin (in terms of both material and immaterial capital) that only a sovereign power could face. The second reason was given by lingering memories of the big economic crisis of the 1930s when the market showed its dramatic limits. Warehouses were stuffed with all sorts of goods, but in the streets people were starving and unemployed. And here comes the third reason: while the Western world was affected by this dreadful and paradoxical plight, the Soviet Union was miraculously shaping the economy of a huge country, moving it from a backward agricultural economy to an industrial power capable of defeating the formidable Nazi war machine. The Soviet Union—even under a merciless dictator whose atrocities were ignored in part—enjoyed great prestige inside the moderate Left of Europe.

As a consequence of all these factors, the economist who dominated the scene was John Maynard Keynes, who saw the solution of the limits of the market in a form of State intervention able with a policy of deficit spending to foster demand and so recreate a form of equilibrium. As we all know, Keynes refused to be concerned with a long-time horizon ("in the long run we are all dead").[1] But economic needs immediately after the war called for just such an attitude focused on the long period. It was true for the countries that were in the core of the capitalistic system in Europe, and also for the backward countries, many of which just in those days were acquiring

[1] Keynes (1923).

political independence (like India). Around the most important international economic institutions was formed a cohort of economists dedicated to the problems of economic development. These experts were equally skilled from a technical point of view and politically oriented to progressive positions and morally involved in the cause of liberating enormous masses of the population from the oppression of elementary needs. The dramatic change of public opinion was well visible in the political elections of the UK in summer 1945. Winston Churchill, the hero of British resistance after the Dunkerque retreat, the symbol of Western democracy attacked by totalitarianism, was defeated by the Leftist Labour Party. Churchill's political opponents who got a landslide victory were inspired by the famous Beveridge report, a Manifesto for a new welfare that offered each citizen free education, housing, and healthcare. The indicator of public progress was not to be gross national product but, rather, the rate of unemployment that, in fact, in the UK around 1950 almost disappeared. Under the Labour Party, the UK proceeded to nationalize vital sectors of the country's economy, giving birth to a wide proportion of leading companies that were governed by civil servants. The same happened in France even though here a few important firms (like Renault and the aircraft engine manufacturer, Gnome et Rhone) were forced into nationalization as a result of their collaboration with the Germans during the Vichy regime.[2]

Italy presented quite a different situation. A massive intervention of the State had happened during the 1930s in order to severe the ties between Universal Banks and companies, a tie considered so dangerous that it risked bringing about the bankruptcy of the same Central bank. In 1933, the IRI was founded, with its primary task that of separating banks from large corporations and extending credit to the real force of Italian capitalism (both then and even today)—small and mid-sized enterprises. IRI, created to be a *temporary* institution, was declared permanent in 1937 basically for two reasons: first, there were not enough capitalists with the financial resources necessary to buy most of the companies that had fallen into IRI's hands. In addition, Italian politics in the 1930s entered a phase of autarky and rearmament that eventually led directly to the nation's engagement in the World War II. Because IRI controlled a large part of heavy industries, it was considered an indispensable tool in this direction.

IRI had been designed by Alberto Beneduce, a great economic expert who was well known before the Fascist period and who was able to count on Mussolini's trust. Beneduce's concept of IRI foresaw a well-thought general organization on top that was entrusted with the functions of control and

[2] Yergin and Stanislaw (1998).

coordination; IRI was also designed as a superholding with ownership entirely in the hands of the State. Underneath IRI were its sectorial holdings and below were the companies (partially controlled but obliged to operate on the market like private companies) that answered to the sectorial holdings. So public property was run with a private managerial style. A most important principle—that applied to the entire system—was that the companies and the holdings were entrusted to the right hands (i.e., to the best managerial and entrepreneurial resources available). This design by Beneduce (that was made possible, thanks to a system of bonds guaranteed by the State) was a smart solution to an historical problem: Italy's well-known gap between ambitious industrial goals and the limited financial resources actually available. The design, though, had a problem that has nothing to do with Beneduce's intelligence. In fact, the only possible owner was the State, an institution that in Italy was far from being a universalistic body. Instead, the State in Italy was dominated by the politics power of discretion. This implied that in the long run, politics' need for electoral consensus ended up directing the goals of public companies to extra-economic aims. In fact, IRI's companies were, without a doubt, among the main characters of the Italian miracle. Italy's extraordinary growth would have been impossible without people like Oscar Sinigaglia (Finsider), Guglielmo Reiss Romoli (STET Telecommunications), Fedele Cova (highways), and Giuseppe Luraghi (Alfa Romeo). But all this was practically spoiled by a strategy dominated more by political than economic considerations. In the end, at the beginning of the 1990s, it was decided to put an end to an institution that had accumulated liabilities for 73,000 billion lire (the equivalent of 40 billion euros).

ENI, the other State superholding, had a completely different story. Its origins can be found in the 1920s when a national agency for oil was created. It was rather unsuccessful in reaching this goal, but it did acquire good technical resources that made it possible to drill Italy's soil in the search for oil or natural gas. In 1945, the Liberation Government wanted to liquidate AGIP as it was considered an heir of Fascist policy. Thus, Enrico Mattei, leader of the Catholic Partisans as well as a successful businessman in the chemical sector during the 1930s, was appointed. Mattei, moved by a strong vision of nationalism, refused to liquidate AGIP, considering its great potential, especially in the field of natural gas. So he undertook a harsh battle against all interests—private as well as the public ones that wanted to close the agency. Mattei obtained the consensus of the prime minister, Alcide De Gasperi, and the minister of finance, Ezio Vanoni, eventually succeeding in not only keeping AGIP alive but also putting it inside the powerful structure of ENI. ENI was a vertically integrated structure where AGIP Mineraria (mining and the

supply of raw materials) was positioned at the top. Below AGIP Mineraria were SNAM (responsible for transporting the raw materials), ANIC (which would transform them into a chemical product), and, finally, AGIP (which would distribute the product). Needless to say, ENI had a very charismatic leadership in the person of Enrico Mattei. As mentioned earlier, Mattei was a passionate nationalist—but not in the negative fascist-imperialistic sense. Instead, he perceived nationalism as a path toward social and civil progress.[3]

This is the framework where the two biographical sketches can be located. Pasquale Saraceno was born in 1903 in the northernmost reaches of Italy, near the border with Switzerland, though his parents came from the deep South, an element that he always kept in mind in his public actions.[4] He graduated from Bocconi University, the nation's most prestigious school for economics and business, and then simultaneously undertook an academic career (as a management professor) and a job as a consultant specialized in accounting. In this capacity he was enrolled by Donato Menichella, the managing director of IRI (Institute of Industrial Reconstruction). Saraceno focused on doing due diligence for hundreds of companies under acquisition, an expertise that made him unique in Italy. During the war, he grew closer to the Catholic environment and—together with other Catholic intellectuals of the time, men like Ezio Vanoni (his brother-in-law who later became minister of finance in a postwar government) and Sergio Paronetto, a precocious scholar who was also involved in IRI's experience—worked on drafting the economic section of the so-called *Camaldoli Code,* which became the handbook that outlined the manners of the good Catholic. In their essay, Saraceno, Vanoni, and Paronetto emphasized the importance of State intervention in the economy in order to overcome social imbalance.

Shortly after the war ended, Saraceno abandoned his accounting role in IRI, taking on the new task of being the planner who would create a new institution with the goal of facilitating dramatic growth in the South. The idea was to fill the tremendous gap between Northern and Southern Italy, the biggest dualism visible in a Western industrialized country. In this way Saraceno was among the promoters of SVIMEZ (a think tank that focused on problems of the South) and the Cassa del Mezzogiorno, a huge financial agency that, taking advantage of American loans, would invest in the infrastructures that were essential for Southern Italy's economy.

Saraceno was also in favor of the creation of a ministry for the Mezzogiorno (as the southern part of the nation was called) and of the 1957 law that

[3] Amatori and Colli (1999).

[4] Persico (2013).

obliged state-owned firms to invest at least 60 % of their funds in the South. Saraceno believed that the actions of state-owned enterprises had to focus on "economicità" (economic health or fitness), blending a maximization of profits with political and social goals. When these goals prevailed, the "improper burdens" (duties of a political or social nature that might contrast with good business ideas) of a public enterprise were to be offset with an endowment fund administered by the Parliament. "Economicità" was a fascinating concept that, in a way, attempted to "square the circle" by reconciling profits with well-being.

Still, it did not stand the test of time and ended up producing "cathedrals in the desert" and eventually the downfall of IRI itself. Saraceno, who had become so entwined with his "creations" and with their ideals, was devastated by this outcome.[5]

Giorgio Fuà was a typical "wandering Jew", with connections to some of the most important Jewish families in Italy and also with strong roots to his native city—Ancona—in the Marche region of the country.[6] After graduating from the country's most prestigious university, the Normale di Pisa, he continued his studies in economics in Switzerland where he sought refuge from Nazi persecution. His first job was with Adriano Olivetti for whom he fostered strong admiration but who he also feared could disturb the success of the Olivetti firm given Adriano's strong utopian aspirations. From Olivetti, Fuà moved to the United Nations where he worked with Gunnar Myrdall, a future Nobel laureate, who instilled in Fuà a strong international perspective. Fuà entered his period as a *civil servant* when in the mid-1950s he met Enrico Mattei, another favorite son of the Marche region. The two men immediately took a liking to each other, and Mattei convinced Fuà to become involved in the adventurous beginnings of ENI, created as a result of the passion for national renewal and Italy's economic progress that Mattei shared with his mentor, Marcello Boldrini, a professor of economic statistics that Fuà already knew. At ENI Fuà was appointed head of the office of Economic Studies, which was famous for having produced some of the nation's most important economists and scholars of institutions. Fuà not only provided Mattei with the quantitative tools he needed for his entrepreneurial actions but, more importantly, assisted Mattei in the creation of an ideology for justifying actions designed to institute a State enterprise that accepted market rules better than private firms in the name of the best interests of the country.[7] This kind of ori-

[5] De Benedetti (2013).

[6] Sapelli (1997), interview with Giorgio Fuà.

[7] Colitti (2008).

entation included an attitude of cooperation with the oil producing nations, a proposition perceived as challenging toward Western powers and their huge oil companies.

But Fuà's career in ENI ended after five years. The reasons behind this short duration have never been clear. Perhaps Fuà wanted to stand side by side with Mattei, but the latter's strong personality made this impossible. Fuà was also strongly attracted to his work as an economist and pulled by a desire to return to his native city, where now it seemed possible to create a new university for the study of economics and management.

So Fuà transformed himself into a sort of academic "entrepreneur", creating in Ancona an economics department made up of a core group of talented young academics, many of whom were far removed from the "establishment"; in the 1960s the university was considered the most advanced institution of its kind in the nation. In the early 1960s, Giorgio Fuà still believed in the State as actor. Together with the colleague he considered his kindred soul—Paolo Sylos Labini—they published what was considered at the time the finest guide for a planned economy ("*Idee per la Programmazione*").[8] But Fuà (faithful to his *motto* that an economist's job was not to "convince" others but, rather, help them understand) from his vantage point in central Italy became convinced that growth can only come from below as he was among the first to discover "industrial districts" (which from the 1970s became a stronghold of the Italian economy).[9] Taking advantage of his contacts and his experiences, Fuà joined together with members of Ancona's school of economics to create *Istituto di Studi Adriano Olivetti*, considered by many to be ahead of its time and, perhaps, the most "glocal" cultural institution of Italy. Like his mentors, Adriano Olivetti and Enrico Mattei, Giorgio Fuà had finally revealed his true nature as an entrepreneur.

Bibliography

Amatori F. – Colli A. (1999), *Impresa e industria in Italia dall'Unità a oggi*, Venice, Marsilio.

Colitti M. (2008), *Eni. Cronache dall'interno di un'azienda*, Milan, Egea.

De Benedetti A. (2013), *Lo sviluppo sospeso. Il Mezzogiorno e l'impresa pubblica (1948–1973)*, Soveria Mannelli, CZ, Rubbettino Editore.

Fuà G. – Sylos Labini P. (1963), *Idee per la programmazione,* Rome-Bari, Laterza.

[8] Fuà and Sylos Labini (1963).

[9] Fuà and Zacchia (1983).

Fuà G – Zacchia C. (eds) (1983), *Industrializzazione senza fratture,* Bologna, Il Mulino.
Keynes J.M. (1923), *A Tract on Monetary Reform*, London, Macmillan and Co. Limited.
Persico A. (2013), *Pasquale Saraceno. Un progetto per l'Italia*, Soveria Mannelli CZ, Rubbettino Editore.
Sapelli G. (1997), *Storia economica dell'Italia contemporanea*, Milan, Bruno Mondadori.
Yergin D. – Stanislaw J. (1998), *Commanding Heights*, New York, Simon & Schuster.

French Public Sector Managers 1945–1975: Modernization Without Miracle

Patrick Fridenson

Abstract Were state-owned enterprises (SOEs) in France during the years between 1945 and 1975 part and parcel of a nation-centered process of decline? This chapter challenges this current view by examining actual practices regarding SOEs' business leaders: their origins and recruitment, their activities and results and the relations between them as agents and the State as principal. It suggests that these top managers contributed to modernity, growth and internationalization and that the heterogeneity of the State, the pressure of some unions and their own contradictions, explain most of the limits of their action and their high level of debt. The overall conclusion is therefore modernization without miracle.

Keywords State-owned enterprise • Public managers • France

JEL Classification L32 • N84 • J45

P. Fridenson (✉)
École des Hautes Études en Sciences Sociales (EHESS), Center of Historical Research, Paris, France

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_6

Introduction

This chapter focuses on the practices and the role of French state-owned enterprises' (SOEs) top managers both in building the mixed economy during the boom years of the postwar period and in shaping a revised model of French big business in connection with other actors and with the values and education prevailing in society. It applies a relational perspective.

The content should be read as a sequel to a series of chapters, often written at the request of Italian and Spanish business historians.[1] Together with the works of a British economic historian, Robert Millward, they have acknowledged the variety of national SOEs after the end of World War II and have made possible the necessary international comparison about their origins, their role, their trajectory and, not the least, their performance within capitalist economies.[2]

The focus of this issue, however, is no more on the enterprises: it is on the top public managers themselves, a topic on which up to now only a German sociologist, Michael Hartmann, has developed an extensive comparative research. In dealing with postwar French public managers, the historian is confronted with two legends. One is a golden tale, written by French public sector managers themselves in their memoirs or inspired by them and their networks. Its narrative is that the public sector managers, together with the public administration, were directly responsible for the remarkable growth rate of the French economy during the boom years, then often called "the French miracle". The other is a dark tale, inspired either by neoliberal economists or by private sector top managers. Its narrative rephrases a long set of criticisms which were expressed at the time: the financial needs of their companies and those of the State crowded out the French financial market, the pricing of the energy that SOEs supplied was not geared toward private enterprise and their performance was not sufficiently oriented toward profit and the creation of value.

To avoid being caught in such a dilemma, the historian can tap a number of resources upon which the chapter is based: an array of archives from the SOEs as well as from the various ministries, numerous oral history interviews, printed sources and statistical data and published memoirs. He or she can also rely on specific PhDs and on the historical dictionary of French business leaders published in 2010.[3]

---

[1] Fridenson (1987a, b, 1996, 2002, 2006, 2007, 2014).

[2] Millward (2008). See also Amatori et al. (2011).

[3] Daumas (2010).

Our chapter does not limit itself to the managers of the SOEs of 1944–1948. As repeatedly advised by historian Michel Margairaz, (Margairaz 1998), it takes into account the managers of the previous generations of SOEs who operate at the same time. One must heed the resulting diversity of "public sector managers".

We shall survey first the origins and recruitment of these top managers and their integration to business networks, then their practices in business internationally and nationally and finally their relationships with their heterogeneous principal: the French State.

The Origins and Recruitment of Top Managers and their Impact on Business Networks

What are the origins of these top engineers? How are they selected? What is the impact of the growth of the public sector on the preexisting business networks?

The Origins

First, scholarly research based on company archives and on biographical yearbooks, which started as early as 1961,[4] has illuminated the origins of the top managers who are in office in the period under review. The collective portrait which emerges shows both common features with the private sector and specificities.

In the great majority of cases, these managers belong to the same pool as the private business leaders: either engineers, mostly State engineers, or financiers, with a distinctive minority of State finance inspectors.[5] Therefore, the characteristic model of *pantouflage* of young top civil servants which became characteristic of a minority of large private companies continues to expand, thanks to the public sector. Both public and private companies thereby acquire mid-career managers or engineers with a sharp experience of government and a developed network.[6] In other words, on the whole, there is no real democratization of the access to leadership in the public sector.

[4] Delefortrie-Soubeyroux (1961, p. 115, 132 and 161). For a reappraisal of her methods, see Joly (2013, p. 15).

[5] Rouban (2002).

[6] Dudouet and Joly (2015).

But SOEs stand out by the greater emphasis on the education of their leaders.[7] They clearly bring about a larger influx of State engineers and State financiers than there was before in the private sector. It entails a professionalization of top management, which is accelerated by the postwar nationalizations of 1944–1948, and by postwar governments' will to constitute either a "rational bureaucracy" or a technocracy or a meritocracy. As a consequence, it implies a colonization of specific SOEs by specific State schools (except at Air France and at Renault), which is favored by the alumni already in office. It has been shown in the case of the French Electricity Board (EDF) that the presence of alumni of the Ecole Polytechnique having completed their education in the School of Bridges and Highways in the private electrical companies created a precondition for the nationalization of 1946.[8] Later, over the years, the origins diversified, with an increasing call on the Institutes of Political Science, the National School of Administration (created in 1945), and on the French higher schools of commerce, led by Ecole des Hautes Etudes Commerciales (HEC).

These practices have been criticized on two accounts. On one side, they foster departures of some of the best public servants. On the other side, the memoirs of a minority of top businessmen or consultants who did not follow that trajectory, such as Noël Goutard (electronics, automobile components), Loïk Le Floch-Prigent (pharmaceuticals, oil, railways) or Gabriel Taïx (consulting engineer in the automobile industry),[9] who call themselves "outsiders" or "black sheep", have criticized the employment of these relatively young top public servants with high potential for producing uniformity among top managers and indifference to consumers' satisfaction.

It is also worth emphasizing that the appointment of CEOs with a higher educative capital had two types of consequences on the rest of their personnel. On one side, in addition to the fact that a few SOEs either continued to have at least one permanent internal consultant, like EDF, or hired one till a conflict provoked his resignation; like Renault, they became more tempted to use consultants.[10] On the other side, they increased the credentials of their collaborators,[11] and the proportion of self-taught cadres declined first in public industrial firms, then in public banks. Hence a dual assessment: more abstract skills, but fewer practical men and a rather limited social advancement.

[7] Levy-Leboyer (1994).

[8] Joly (2001).

[9] Taïx (1984), Goutard (2005), Le Floch-Prigent (2014).

[10] Taïx (1984). For prewar years compare Henry (2012).

[11] Le Garrec (1974).

The Recruitment

As in prewar years, the selection of each new CEO was a delicate process usually involving several ministries. Applicants were either members of the top management of the SOE or men recommended by the outgoing CEO or members of the Cabinet of one of the ministers or directors of a ministry. There is not yet a table giving the previous positions of all the CEOs of the period and the proportions between them. Choices were made on a case by case basis. They were very traditional for banks and insurance companies, more idiosyncratic for industrial firms and transportation companies. Only in 1961 did the Gaullist Prime Minister Michel Debré succeed in centralizing the appointment process, but he then proved totally unable to centralize strategies and policies as he had hoped.[12]

The salaries of the CEOs were generally lower than those of either their counterparts or their predecessors in the private sector. But case by case, they managed to obtain some increases from the mid-1950s.

Upon some SOEs, mostly postwar nationalized enterprises in industry, Parliament bestowed another position, that of chairman of the board. A number of those appointed between 1944 and 1947 were Communist trade unionists or political activists. Because of the Cold War, they were dismissed by government from 1948 onward and replaced by more moderate chairmen, however influenced by some traces of the initial pattern: their successors have been trade unionists, political activists or alumni of the National School of Administration.[13]

The Networks

A recent joint research by a French historian and a French sociologist has compared the networks of prewar private French entrepreneurs and postwar entrepreneurs of the companies which were nationalized.[14] By networks it means "a study of the interlocks between the largest French firms listed on the Paris stock exchange". The data collected by the authors show that the nationalizations of 1944–1948 did bring about a major reduction of French business networks. This is obviously true also of Renault, a company nationalized in 1945 which was not listed on the Paris Bourse. Nevertheless, it is a bit reductionist to speak only in terms of "disruption" of preexisting interlocks.

[12] Debré (1988).

[13] Viseux (1991), Trempé (1989), Chapman (1991).

[14] François and Lemercier (2014a, b).

To be sure, SOEs are not listed. But on one side, SOEs may have kept on their board top managers of the same bank or the same industrial firm as before if the latter has been nationalized too. On the other side, new interlocks may appear which express a connection or even a solidarity between SOEs of the period under review. The authors in a second chapter say that they include SOEs in their sample study. But then, their argument is not entirely convincing. And on a final side, other types of networks were developed by SOEs: membership of one of the committees of the French Planning Commission created in 1946, which gave their top managers a good leverage,[15] or, less influential, membership of the Conseil Economique, created in 1946, and renamed in 1958 Conseil Economique et Social where the SOEs had a specific contingent.[16]

To design their actions, these top managers had to take into account simultaneously the opening of the national economy to Europe and the reshaping of priorities within France.

What Did Bosses Do?

The status of SOEs or mixed economy enterprises had a major consequence. It put these firms on a specific position not only on markets but also on the public sphere.[17] The medias, the governments, the parliament, the parties, the administration of the ministries, the French equivalent of the General Accounting Office (the Cour des Comptes), the unions and lots of academicians had their eyes on these companies. The action of the CEOs and the performance of their firms depended partly on their CEOs' insertion into these multiple leagues, on their ability to juggle with complexity and on their sense of both public relations and public opinion. Therefore, it is only possible to sketch out a typology of their trajectories.

To be sure, in a few cases, top management kept a low profile and basically played continuity with prewar strategies. This was basically the behavior of the nationalized insurance companies.

In a few other cases, they combined investment and conservatism. A case in point is shipping. The Compagnie Générale Transatlantique, which had been turned into a mixed economy company in 1931, was able, under the leadership of Jean Marie (1944–1960), to modernize its fleet by ordering new ships.

[15] Guigueno (2008).
[16] Taïx (1984).
[17] Sardais (2009).

By 1952, it became the second transatlantic line behind the British Cunard Company, with 11 percent of the passenger traffic. But its strategy was also fraught with conservatism: it was more interested in preserving the imperial heritage by serving the French West Indies and Corsica than by the goal of obtaining profits and thus by persuading the government to pass an order for a super liner, the *France*, which proved a commercial failure.

However, a majority of SOEs' top managers embarked on innovations.

Internationalization

The CEOs generally showed much greater openness to international influences than their predecessors. They also supported European economic integration in the name of growth and consumption.

Their support to Europe went through two stages. They warmly supported the creation of the European Coal and Steel Community (ECSC) in 1950–1951: in particular, the French Coal Board and the automobile company Renault were both on the initiative, with Renault rallying private metal consumer companies to the cause of the ECSC. However, they expended less energy to support the Common Market, being in favor of a larger market but focusing on protection against American direct investment, and kept a close eye on the timing and modalities of the implementation of the European Economic Community.[18]

Simultaneously, the EDF was one of the staunchest supporters of the building of cross-border power links between national electrical systems "as a vehicle for improving grid stability and economizing on reserve capacity". This was the result of interconnection projects prepared by electrical engineers of several countries, including France, in the 1930s, then of the rejection by postwar national governments of a tightly integrated European system advocated either by the United Nations Commission for Europe or by US Marshall Aid planners. Within the framework of a nongovernmental organization established in 1951, EDF and the other power companies of Western Europe "started synchronous operations" in 1958. In 1962 "Spanish, Portuguese and French power representatives introduced a Franco-Iberian electricity union".[19]

The CEOs also supported the introduction of various American managerial methods. EDF introduced Harvard's economic calculation methods and marginal costs. EDF and Renault were on the vanguard of operational research

[18] Warlouzet (2011).

[19] Högselius et al. (2016).

Table 1 Patents granted to French Soes Energy and Transport Companies from their creation until 1958

Institution	Year of creation	Number of French patents	Number of foreign patents	Total	Annual average
EDF	1946	168	194	362	30
GDF	1946	87	43	130	11
SNCF	1937	139	27	166	9
RATP	1948	21	12	33	3

Source: Adapted from Galvez-Behar (2016, p. 101)

in French business. In parallel with pioneering private companies, accounting managers of the SOEs were keen on applying the American method of standard costs. Their personnel departments pioneered the transfer to France of training within industry, then job evaluation. In the various SOEs, the secretary general and the sales department developed public relations, promotional films, marketing, advertising and consumer credit.[20] They included more American firms among the consultants whom they hired. The oldest and still largest advertising agency, Havas, nationalized during the war by the Vichy regime, was a regular user of American advertising and marketing methods.

The top managers of the SOEs also bought foreign patents, which in itself refutes the reproaches of insularity which have been leveled against the SOEs (see Table 1).

They were keen on new technologies from abroad to transform raw materials: hence the Renault automobile company's support since 1945 to the introduction of wide strip mills in French steelmaking.[21]

It is worth underlining here that the managers of most SOEs either continued or opened an important strategy of expansion abroad, either prompted by the government's need of foreign currency or by an autonomous will to reap economies of scale and scope. Profitability was long relatively small, given the costs of survival and adaptation on these markets.

Modernization

The same table simultaneously shows a major effort of the four SOEs under review to also develop their own R & D. Furthermore, examples from other

[20] Bouvier (2012).

[21] Kipping (2002), Aylen (2015).

SOEs can be supplied here: "the publicly owned aircraft manufacturer, with the twin-engine short-range carrier Caravelle (1955) or the first non-US or non-UK helicopters in Europe (1955–1957)"[22] which led both to the CFM56 jet engine, the world's best-selling jet engine created by Snecma, to Airbus and to Eurocopter[23]; Renault's transfer machines eagerly coveted and then bought by Citroën, by Peugeot, and even by Berliet.

But some contradictions did emerge. In nuclear electricity, the French military and the Atomic Energy Commission (itself close to the military) initially imposed a new French process chain relying on natural uranium, graphite and gas, probably at the expense of electricity consumers. However, in the late 1960s, EDF obtained from the government the opposite: reactors with pressurized water under license of the American company Westinghouse. In the early 1960s, the top brass of the French State's TV channels expressed themselves against the color TV system invented by a French company and were disavowed by the government. In the 1960s too, a major part of Renault's top management did not believe in the computer-assisted design methods invented by their own engineer Pierre Bézier, because "they had not been invented in America", and it is only in 1970 that Bézier was given a green light.

State-owned banks and industrial companies were among the early users of computers, whether French or American.[24]

SOEs' top managers undertook major efforts to increase the productivity of their workers and employees. Nowhere was this more apparent as in the coal industry, till the minister of Industry in the early 1960s recognized that all French coal mines would have to close in the 25 years to come. Job evaluation, which we mentioned above and which was introduced at Renault factories in the late 1950s, was part of the same strategy.

New products and services were seen by top managers as the shop windows of SOEs'; for instance, the electrification of the French railways network was widely publicized.

Investment and modernization were thus on the agenda of most of the top managers of the SOEs, a policy which was quickly approved by American economists and political scientists studying contemporary France even if some of them criticized the program and costs of water dams of EDF.[25]

---

[22] Chadeau (2000).

[23] Seiffert (2008).

[24] Ledoux (2001).

[25] Sheahan (1963).

Industrial Relations

SOEs' top managers worked hard to change the adversarial or paternalistic pattern which characterized these relations in their companies before World War II. In every SOE, the freedom to unionize was recognized, and unions became *personae gratae*, official counterparts of top management. In the four largest SOEs, generally at the initiative of Communist ministers, the State granted "statutes" to electricians, gas workers, Paris bus and subway workers and railway men in the late 1940s. These statutes included lifetime employment, various fringe benefits and a decent pension system at the early age which was customary for these jobs. They had all been preceded by prewar policies, but which were thus made coherent, extended and improved. They were supplemented by provisions granting a good budget to works committees and additional benefits, thanks to them.[26] If statutes were immediately considered a major progress by the workers and are still in place today, it soon appeared that they had two types of limits for management and labor. To labor these statutes obviously could not guarantee anything in terms of wages, overtime and working conditions. In the case of coal mines, it even became clear from the early 1960s that even production and jobs could be terminated. To management these statutes did not guarantee the social peace which they were hoping for and which was the lot of the first CEOs after the Liberation, from 1944 to 1946.

Given the fact that there were representatives of workers, employees and middle managers elected to the board of not only these four companies, but of every SOE, why did all SOEs see industrial relations as difficult? Two external factors, beyond their reach, mattered. The Cold War had a strong impact on the main trade union (the Confédération générale du travail (CGT), soon Communist-controlled). The relatively low level of the wages in most SOEs because of their limited resources brought about a recurrent discontent in the workforce, increased by inflation. A few SOEs were peaceful, like Air France, where the CEO made a permanent social compact with the aristocracy of his workforce: the pilots. In EDF, conflict was rare, in part, because a strike in 1957 had led to the death of a child, thus enabling the CEO to address public opinion and to force the unions to limit their strike activity. Other SOEs had the majority of their workers use strike as a regular means to increase the power relation in the company or to modify the policy of the State. With this typology in mind, and with the fact that during the period under review, the public sector was more unionized than the private sector, a number of top managers were caught between the two branches of an alternative. Either they

[26] Beltran and Williot (2010).

stayed silent and accepted union power or they had to be tough: they played minority unions against the majority union or they combined authority, pluralism and collective bargaining. In 1947 and 1948 in front of the eruption of mass strikes, some top managers kept silent. Only recently has it been revealed that Cabinet members of the ministry of Industrial Production came by car to some of the sites where top management had chosen silence, and tried, sometimes successfully, to outmaneuver the unions and the Communist party by calling the department prefects to use police and army repression and by supporting themselves the split of the majority union, the CGT. After the end of these two waves of mass strikes, the government fired a number of Communist and unionists who were presidents of the boards of SOEs and a few CEOs.[27] The following year, in a similar perspective, government limited the autonomy of some CEOs in the aircraft industry where authority and profitability were at stake and fired one of them. Later on, many sociologists or political scientists have taken up the views expressed by union members in recollections or in published memoirs that ever since there was no more difference with many private firms. In a long reply published in 1993, a retired engineer from Renault has cross-examined the views of such witnesses on management of business and of labor, command and hierarchical relations, trade-union practices and discourse and conformist behavior of middle managers. He produced facts or arguments suggesting that in most cases such approaches were either exaggerated or misleading.[28]

Thus, top public managers who had not yet done so learned to be loyal agents and at the same time to regularly explore the range of their autonomy and to obtain a positive feedback on their proposals from their principal: the State.

The Principal and the Agents

Here we survey some relational problems the public managers faced with governments and which were very similar from one SOE to the other although the companies' statutes and governance structures differed considerably, which is quite normal. Indeed, the State had its own goals, which again is usual for a principal: governments advocated regional development or wanted to control the international strategy of SOEs in some geographical areas[29];

[27] Taïx (1984).

[28] Compain-Mefray (1993).

[29] Fridenson (2006).

layoffs were usually not on the agenda of the State. But in board meetings of the SOEs, there might also be open disagreements between the representatives of different ministries and even, in rare cases, of the same ministry.[30] Thus, top managers as its agents had to find answers to classical managerial issues in front of a nonclassical shareholder: how would the results of their enterprises be controlled? Were they free to make decisions on their cost structure? How could they find financial resources for the future?

From Control to Contract?

In 1948, following the financial difficulties of one of the regional SOEs for aircraft production: Société nationale des constructions aéronautiques du Sud-Est (SNCASE) and criticisms of SOEs by a number of media and several political parties in Parliament, but also governments' desire to have SOEs enforce their policy of reconstruction and of modernization and the MOF's specific wish to be able to validate the annual accounts of SOEs as shareholders do in general assemblies, the government looked for a more detailed control of their activity and performance than was up to then the rule with State inspectors. It chose not to use private accounting firms for audit and assurance. It created the Commission for Verifying the Accounts of Public Firms (CVCEP). Chaired by a Chamber president of the French General Accounting Office, it comprised of four, then five specialized sections. Each had six members, all civil servants. They also called 100 referees, that is, civil servants chosen in the various ministries. The CVCEP innovated in two ways: its members worked in teams, and they were allowed to visit the SOEs. Thus, it became SOE managers' task to supply the teams with relevant information and to issue replies to their initial written observations. During the first years following the creation of the Commission, its chairmen were motivated by a statist conception in line with the ideas guiding reconstruction after World War II: public managers were usually told to follow more closely the five-year economic plan and the various governmental measures. Gradually, however, the CVCEP initiated a rapprochement with the viewpoint of SOE managers, all the more as a policy for opening the economy was pursued. Situating itself in "the ideological mainstream" of the liberalization of the French economy, according to recent researches,[31] the CVCEP came to declare that SOEs' results should not be measured only in keeping with the imperatives set by

[30] See the monthly board meeting of the Renault Company on February 24, 1948 for such a case (Archives of Renault Histoire, Boulogne-Billancourt).

[31] Berthereau (2004, 2005, 2009).

the ministries such as pricing levels or industrial obligations, and that the level of competition should be taken into account and the economic and financial performance of the SOE should be assessed. When their results were satisfactory, the more subtle SOE managers therefore came to use the annual reports of the CVCEP as foundations to limit the interference of government into the proper management of their company. In its final years, the CVCEP advocated the creation of education cycles to train public managers in accountancy, management and informatics. It called for the joint construction of a contract between the relevant ministry and each SOE. Indeed in 1966, the Prime Minister Georges Pompidou set an interministerial committee to improve the relations between SOEs and the State. The Committee's report of April 1967, mostly inspired and written by a general inspector of Finance, Simon Nora, advocated a stricter acceptance of managerial practices, and as a consequence, a greater managerial autonomy for all the public enterprises and the institution of contracts between government and SOEs which would run over several years.

After the social movement of May 1968, where SOEs' workers were very active, starting in the aircraft industry, the new government initiated such contracts with a few large SOEs, like EDF, from December 1969 onward, but they were killed by the first oil shock of 1973 as it contradicted all the economic forecasts which were the foundation of the contracts.

Such debates were also prompted by the difficulties that some of the SOEs' top managers experienced about the State's interference in their cost structure.

The Cost Structure

After the period of the Liberation of France, when government tried a full control of prices and wages for the entire economy, pricing and wages remained major issues for SOEs. SOEs' managers easily recognized that they were central for the shaping of their strategies, but the State often considered them as politically sensitive and key matters for political stability.[32] Hence, the managerial dilemma of SOEs' CEOs: how to find a coherent policy and please or appease the State? Nowhere was this dilemma more striking as in the sector of energy: coal, gas, electricity and of public transportation, with the national railways and the Paris buses and subway.

As for wages, governments, anxious to prevent or limit their increase, attempted to centralize the fixation of their level. But this short-term policy,

[32] Maier (1987).

so contradictory with the official idea of planning, proved deeply flawed. It encouraged the temptation for top managers to develop bonuses as a way of circumventing the pressure by the MOF. Simultaneously, it spread the seeds of discontent among the labor force who did not feel rewarded for its productivity efforts. All historical evidence available shows that governments, including the strongest ones in the Fifth Republic, were periodically obliged to yield to workers and employees' demands for wage hikes. Only a few companies, generally the most profitable, became able to introduce genuine collective bargaining, which might include additional benefits, such as—at the Renault Company—the third week of paid holidays (1955) and the fourth week (1962). In the latter case, the two most influential ministers were so furious that they tried to obtain the dismissal of the CEO, Pierre Dreyfus, yet they failed at the end of the day.

Pricing was the other sensitive issue.[33] Governments were afraid of antagonizing consumers, who were also voters. Therefore, the prices of energy, of public transportation, of postal stamps, were always the topics of heated bargaining between SOEs' top managers and government. This relationship had three direct consequences. As the telephone was not recognized as a need of the masses, its prices, and not only as in other countries for long distance calls, remained outrageously high, which in turn curtailed its expansion, and a good deal of the corresponding turnover was predated by either the postal service or the MOF during many years.[34] At least, SOEs in the energy sector discriminated their pricing against industrial or commercial customers. Recent research has shown that the pricing policy of EDF has not been at all as friendly to industrial users as long claimed by EDF. See, for instance, the case of the French private firm which was one of the world leaders of the aluminum industry, Pechiney. Its own electricity plants had been nationalized in 1946 and transferred to EDF. Hampered, in France itself, by too high a price of electrical current as EDF refused to grant it sufficient rebates, the group soon chose to delocalize its production abroad and, in search of cheap electricity, established plants close to large dams, as in Cameroon on the site of Edéa or in Canada near Vancouver.[35] A third direct consequence was for some SOEs the unceasing difficulty to find enough self-financing to undertake modernization on a sufficient scale: this was the case for some time of the Paris subway and also accounts for the huge delay in creating the Regional

[33] Marschak (1960).

[34] Carpenter (2011). Telecoms were not actually a SOE, but a general directorate within the Ministry of Post and Telecoms. Yet, from 1967 onward, their behavior is very similar to that a SOE.

[35] Lesclous (1999), Eck (2003).

Express Network (RER) of the Paris region. Only the companies that were on competitive markets gained a full pricing freedom. This was the case of Air France, of the Renault automobile company or, from 1965 onward, of the oil company ELF.[36]

Financing the Future

During the period from 1945 to the early 1960s, it was the public CEOs' general impression that the State was a disorganized or short-term shareholder. It was very keen on demanding the best dividends possible (except for companies threatened by structural decline, like the coal mines, or by intersectoral competition, like the railways), but it was not ready to increase the capital of the SOEs. The problems became all the more acute as US aid from the Marshall Plan dried out in the early 1950s. Thus, the State's usual response to the requests of the CEOs was to allow them to borrow capital from banks or from the national financial markets.[37] Under these conditions, the debts and the debt ratios of all the SOEs increased, with Air France at the highest debt ratio to finance its new fleet. For Renault, beyond giving the CEO permission to float several loans, the Treasury imagined a temporary financial technique in 1947, that is, asking from customers an important down payment when ordering the car. It worked well but only till the mid-1950s. So, the modernization I surveyed earlier in this chapter was built on a debt economy, with a crowding out effect till the late 1950s and with the underlying concept that inflation would erase much of the debt.

This relationship partly changed in the 1960s. At the request of Renault's managers, after long negotiations with the MOF, in 1963 Renault obtained regular injections of fresh capital to accompany its expansion. This new policy was extended to a few SOEs. In addition, Renault gained the permission to finance itself on the international financial markets, thanks to one then two financial subsidiaries created in Switzerland. However, the State set limits; as in 1973, it forbad Renault to create its own bank in France.[38] Later, after much pressure from both top Telecom engineers and an association of telephone users, the State asked for two official reports on the future of telephone supply, which were written in 1967 (yet never published). As a result, two successive general directors of Telecoms obtained the right to open a series of

[36] Beltran and Chauveau (1998).

[37] Quennouëlle-Corre (2000). The loans of the Crédit National were reserved to private firms: Baubeau et al. (1994).

[38] Centre des Archives Economiques et Financières, Direction du Trésor, B22 452, 1973.

financial subsidiaries entitled to borrow first on the national market, then on international markets. In the latter case, the general director, Gérard Théry, had to appeal against the veto of the MOF and secured the support of the President of the Republic.

This second wave of modernization was built on sounder bases. But it still might run against a conflict of priorities within government. A case in point was the decision to build and operate a high-speed railway track.[39] The French Railways' project ran against the Sixth Plan priority to road building and urban mass transit. The SNCF's (Société nationale des chemins de fer français) CEO André Ségalat used his old friendship with the President of the Republic Georges Pompidou to get the decision in 1972, but its enforcement had to be postponed till 1974 "for the SNCF to demonstrate in no uncertain terms the worth of its project to both the government and the public". In short, the SNCF sold the Train à Grande Vitesse (TGV) "as a supplement to, rather than as a replacement for, traditional rail service", extolling not "a passion for speed", but "its unification of technology and shared political values". Similarly, EDF's project of a plan to build a new set of nuclear plants after the first oil shock was only accepted and financed by the government because of Prime Minister Pierre Messmer's own persuasion and of his influence during the difficult period of President Pompidou's illness.[40] In a world of European integration and growing globalization, top public managers were turning into lobbyists.

Conclusion

On the basis of the evidence we have presented here, and although the sharp critical tone of his chapter is welcome, we disagree with part of the rather unilateral interpretation of the late Emmanuel Chadeau (in Toninelli 2000, p. 206), according to which SOEs were meant to protect France "from international competition and market rules", and with his final question: "Did the French taste for nationalization delay or hasten the country's international decline or did it simply accompany it?".

We feel much closer to the recent approach of Pierre François and Claire Lemercier, as summed up by the editor of one of their two chapters[41]: "They show, first, that when placed in a systematic and longitudinal set of comparisons, the French case does not seem so unusual: SOEs are not so much typical

[39] Meunier (2002), Guigueno (2008).

[40] Morsel et al. (1996).

[41] Dubuisson-Quellier (2014).

of a country than they are of a period, that of post-World War II, where they occur in most of the Western economies. Second, placing French SOEs in the interlocking directorates' network, they show that SOEs did not disrupt the network [an analysis which nevertheless calls for debate]; on the contrary, they melted in mechanisms that existed long before they were created". She suggests "that the classical historical embodiments of weak or strong states should be reconsidered, but also that the categories used to study the ways that states influence the economy can be rethought: for all three of them, the most relevant question may not be a quantitative one, about the "weight", the "size", or the "strength" of the different states, but a qualitative interrogation, about the way the state intervenes and the tools it mobilizes". This research on public managers, however, does not offer by itself "a way to reconsider the way state engages with markets". It only offers a starting point to look, through the eyes of public managers and their principals, "at how the market can be considered as a tool for the implementation of public policies".

Our own conclusion at this stage (recognizing that a reassessment of post-war France's evolution from "State to market"[42] and of its periodization is now indispensable) is threefold:

(1) the contribution of most public sector managers to growth materialized despite the contradictions and the heterogeneity of the State; it was combined with modernization (building of new infrastructures, with however a major delay in Telecoms until the catch-up plan of 1974, technological innovation, marketing innovation, human resource management and introduction of American management methods); yet it deliberately neglected or left aside the issues of social costs science-oriented and market-oriented modernization as expressed by parts of French society[43];
(2) however, some public enterprises did not change much, relied on the increase of demand and took time to satisfy new needs (see, for instance, the nationalized insurance companies as analyzed by historian André Straus)[44];
(3) the limited financial resources that were at their disposal brought about a huge debt, which was partly erased by inflation, an inflation the rate of which was higher than in Germany and even than in the United States.

The overall conclusion is therefore modernization without miracle.

[42] Schmidt (1996).
[43] Pessis et al. (2013).
[44] Straus (2013).

Bibliography

Amatori F. – Millward R. – Toninelli P. (eds) (2011), *Reappraising State-Owned Enterprise: A Comparison of the UK and Italy*, London, Routledge.

Aylen J., «Les logiques d'adaptation des techniques de métallurgie américaines en Europe (années 1930–1950)», in Benoit S. – Michel A. (eds) (2015), *Le monde du génie industriel au XX^e siècle. Autour de Pierre Bézier et des machines-outils,* Sévenans, Pôle Editorial de l'Université de Technologie de Belfort-Montbéliard.

Baubeau P. – Lavit d'Hautefort A. – Lescure M. (1994), *Le Crédit national. Histoire publique d'une société privée*, Paris, J.-C. Laettès.

Beltran A. – Chauveau S. (1998), *Elf. Des origines à 1989*, Paris, Fayard.

Beltran A. – Williot J.-P. (2010), *Du gaz en France à Gaz de France, deux siècles de culture gazière,* Paris, Le Cherche-Midi.

Berthereau D. (2004), «Aux origines du contrôle *a posteriori* des entreprises publiques», in Bouneau C. – Fernandez A. (eds), *L'entreprise publique en France et en Espagne 18^e-20^e siècles*, Pessac, Maison des Sciences de l'Homme d'Aquitaine, pp. 273–295.

Berthereau D. (2005), *L'expertise de la Commission de vérification des comptes des entreprises publiques (1948–1976)*, Ph.D. thesis in history, Université Paris IV.

Berthereau D. (2009), «L'outillage mental des rapporteurs de la Commission de vérification des comptes des entreprises publiques (1948–1976)», *Annales des Mines - Réalités industrielles*, February, pp. 118–122.

Bouvier Y. (2012), «Filming Electrical Consumption. EDF's Promotional Films (1946–2004)», in Möllers N. – Zachmann K. (eds), *Past and Present Energy Societies: How Energy Connects Politics, Technologies, and Cultures*, Bielefeld, transcript Verlag, pp. 109–136.

Carpenter M. (2011), *La bataille des télécoms. Vers une France numérique*, Paris, Economica.

Chadeau E. (2000), «The Rise and Decline of State-Owned Industry in Twentieth-Century France», in Toninelli P.A. (ed.), *The Rise and Fall of State-Owned Enterprises in the Western World*, Cambridge, Cambridge University Press, pp. 185–207.

Chapman E. (1991), *State Capitalism and Working-Class Radicalism in the French Aircraft Industry*, Berkeley, University of California Press.

Compain-Mefray A. (1993), «Un autre regard», *Renault Histoire,* no. 5, June, pp. 51–68.

Daumas J.-C. – Chatriot A. – Fraboulet D. – Fridenson P. – Joly H. (eds) (2010), *Dictionnaire historique des patrons français*, Paris, Flammarion. Entries used: 1) individual biographies: Louis Armand (SNCF), Jean Aubert (Compagnie nationale du Rhône), François Bloch-Lainé (Caisse des Dépôts, Crédit Lyonnais), Marcel Boiteux (EDF), Edouard Escarra (Crédit Lyonnais), Roger Guibert (SNCF), Pierre Guillaumat (BRP, UGP, Elf, EDF), Max Hymans (Air France),

Dominique Leca (L'Union, l'UAP), Pierre Lefaucheux (Renault), Raymond H. Lévy (ERAP, Elf), Jean Marie (Compagnie Générale Transatlantique), Maurice Schlogel (Crédit Lyonnais); 2) collective biographies: Dirigeants des Charbonnages, Dirigeants d'EDF, Dirigeants de la Régie Renault, Inspecteurs des Finances patrons de banque, Patrons de l'Audiovisuel public, Patronat gazier; 3) topics: Diriger une entreprise publique, Grandes écoles: la fabrique des dirigeants.

Debré M. (1988), *Gouverner. Mémoires*, vol. III : *1958–1962*, Paris, Albin Michel.

Delefortrie-Soubeyroux N. (1961), *Les dirigeants de l'industrie française*, Paris, A. Colin.

Dubuisson-Quellier S. – François P. (2014), "The Economy and the State." *Economic Sociology* (*European Electronic Newsletter*), Vol. 15, No. 2.

Dudouet F.-X. – Joly H. (2015), «"Patrons d'État": la permanence d'une voie royale», in Zielinski B. – Raviot J.-R. (eds), *Les élites en question: trajectoires, réseaux et enjeux de gouvernance: France, UE, Russie*, Brussels, Peter Lang, pp. 61–89.

Eck J.-F. (2003), *Les entreprises françaises face à l'Allemagne de 1945 à la fin des années 1960*, Paris, Comité pour l'histoire économique et financière de la France.

François P. – Lemercier C. (2014a), «State or Status Capitalism?», *Economic Sociology - The European Electronic Newsletter*, Vol. 15, No. 2, March, pp. 17–33.

François P. – Lemercier C. (2014b), «Ebbs and Flows of French Capitalism», in David T. – Westerhuis G. (eds), *The Power of Corporate Networks: A Comparative and Historical Perspective*, London, Routledge, pp. 149–168.

Fridenson P. (1987a), «Les entreprises publiques en France de 1944 à 1986», *Annali di studi della storia dell'impresa*, 3, p. 144–155.

Fridenson P. (1987b), «Atouts et limites de la modernisation par le haut: les entreprises publiques face à leurs critiques (1944–1986)», in Fridenson P. – Straus A. (eds), *Le capitalisme français XIX^{e}-XX^{e} siècle. Blocages et dynamismes d'une croissance,* Paris, Fayard, pp. 175–194.

Fridenson P. (1996), «Réflexions sur les étapes de la nationalisation d'EDF», in Badel L. (ed.), *La nationalisation de l'électricité en France. Nécessité technique ou logique politique*, Paris, PUF, pp. 381–392.

Fridenson P. (2002), «Les entreprises publiques», in Duclert V. – Prochasson C. (eds), *Dictionnaire critique de la République*, Paris, Flammarion, pp. 705–713.

Fridenson P. (2006), «La multinationalisation des entreprises françaises publiques et privées de 1945 à 1981», in Lévy-Leboyer M. (ed.), *L'économie française dans la compétition internationale au XX^{e} siècle*, Paris, Comité pour l'histoire économique et financière de la France, pp. 311–335.

Fridenson P. (2007), «Transforming Public Enterprise in France», in Clifton J. – Comin F. – Diaz-Fuentes D. (eds), *Transforming Public Enterprise in Europe and North America. Networks, Integration and Transnationalisation*, Houndmills, Palgrave Macmillan, pp. 65–76.

Fridenson P. (2014), «Le périple de la nationalisation de Renault», *Renault Histoire*, no. 31, Octobre, pp. 63–84.
Galvez-Behar G. (2016), «Managing Scientific Patenting in French Research Organizations (1916–1951)», *Entreprises et Histoire*, n° 82, April, pp. 89–102.
Goutard N. (2005), *L'outsider. Chronique d'un patron hors normes*, Paris, Editions Village mondial.
Guigueno V. (2008), «Building a High-Speed Society: France and the Aerotrain, 1962–1974», *Technology and Culture,* 49, 1, January, pp. 21–40.
Henry O. (2012), *Les guérisseurs de l'économie. Sociogenèse du métier de consultant (1900–1944)*, Paris, CNRS Editions.
Högselius P. – Kaijser A. – van der Vleuten E. (2016), *Europe's Infrastructure Transition. Economy, War, Nature*, Basingstoke, Palgrave Macmillan, 2016.
Joly H. (2001), «Les ingénieurs du corps des Ponts et Chaussées dans les compagnies électriques: la nationalisation avant la nationalisation?», in Barjot D. - Morsel H. (eds), *Stratégies, gestion, management. Les compagnie électriques et leurs patrons (1895–1945)*, Paris, AHEF, pp. 425–441.
Joly H. (2013), *Diriger une grande entreprise au XX^e siècle: l'élite industrielle française*, Tours, Presses Universitaires François-Rabelais, 2013.
Kipping M. (2002), *La France et les origines de l'Union européenne 1944–1952. Intégration économique et compétitivité internationale*, Paris, Comité pour l'histoire économique et financière de la France.
Le Floch-Prigent L. (2014), *Le mouton noir. Mémoires*, Paris, Pygmalion.
Le Garrec E. (1974), «37 années aux Usines Renault», *De Renault Frères constructeurs d'automobiles à Renault Régie nationale*, December, p. 75 sqq.
Ledoux P. (2001), *Journal imprévu d'un banquier: une aventure, un métier 1943–2000*, Paris, Editions Odile Jacob.
Lesclous R. (1999), *Histoire des sites producteurs d'aluminium. Les choix stratégiques de Pechiney, 1892–1992*, Paris, Presses des Mines.
Lévy-Leboyer M. (1994), «La science mène-t-elle à l'action? Les polytechniciens dans l'entreprise», in Lesourne J. (ed.), *Les Polytechniciens dans le siècle 1894–1994*, Paris, Dunod, pp. 141–165.
Maier C.S. (1987), *In Search of Stability*, Cambridge, Cambridge University Press.
Margairaz M. (1998), «Companies under Public Control in France», in Whiteside N. – Salais R. (eds), *Governance, Industry and Labour Markets in Britain and France: The Modernising State in the Mid-Twentieth Century*, London, Routledge.
Marschak T. (1960), «Capital Budgeting and Pricing in the French Nationalized Enterprises», *The Journal of Business*, 33, 2, April, pp. 133–156.
Meunier J. (2002), *On the Fast Track: French Railway Modernization and the Origins of the TGV*, *1944–1983*, Westport, Praeger.
Millward R. (2008), *Private and Public Enterprise in Europe. Energy, Telecommunications and Transport, 1830–1990*, Cambridge, Cambridge University Press.
Morsel H. (ed.) (1996), *Histoire de l'électricité en France*, vol. III: *1946–1987*, Paris, Fayard.

Pessis C. – Topçu S. – Bonneuil C. (eds) (2013), *Une autre histoire des "Trente Glorieuses". Modernisation, contestations et pollutions dans la France d'après-guerre*, Paris, La Découverte.

Quennouëlle-Corre L. (2000), *La Direction du Trésor, 1947–1967. L'Etat banquier et la croissance*, Paris, Comité pour l'histoire économique et financière de la France.

Rouban L. (2002), «L'inspection générale des Finances 1958–2000. Quarante ans de pantouflage», *Les Cahiers du CEVIPOF*, no. 31, June, pp. 1–155

Sardais C. (2009), *Patron de Renault. Pierre Lefaucheux 1944–1955*, Paris, Presses de Sciences Po.

Schmidt V.A. (1996), *From State to Market? The Transformation of French Business and Government*, Cambridge, Cambridge University Press.

Seiffert M.-D. (2008), *Apprentissages, stratégies et compétitivité sur la longue durée. L'étonnante histoire d'Eurocopter*, Paris, L'Harmattan.

Sheahan J. (1963), *Promotion and Control of Industry in Postwar France*, Cambridge MA, Harvard University Press.

Straus A. (2013), «La concentration des entreprises d'assurances en France depuis la Seconde Guerre mondiale: réalités et limites», *Entreprises et Histoire,* no. 72, September, pp. 55–79.

Taïx G. (1984), *A la force du poignet*, Paris, Editions Albatros.

Toninelli P. (ed.) (2000), *The Rise and Fall of State-Owned Enterprises in the Western World*, Cambridge, Cambridge University Press.

Trempé R. (1989), *Les trois batailles du charbon 1936–1947*, Paris, La Découverte.

Viseux A. (1991), *Mineur de fond*, Paris, Plon.

Warlouzet L. (2011), *Le choix de la CEE par la France: l'Europe économique en débat de Mendès France à De Gaulle (1955–1969)*, Paris, Comité pour l'histoire économique et financière de la France.

SASOL. From State-Owned Enterprise to Chemical Leader: Management and Strategy, 1952–1980

Grietjie Verhoef

Abstract In 1951, the South African state established the South African Oil and Gas Corporation (SASOL), which became the world leader in the manufacturing of synthetic fuel. By the early 1970s, management insisted on privatization and the listing of the company on the Johannesburg Securities Exchange. This chapter investigates the making of the managers of SASOL: their personality traits, their background (as sociocultural context and education) and their relationship with government's exponents as well as their industry links. The chapter shows the role of independent professional management in securing operational efficiency and its impact on facilitating an exit strategy from the state ownership.

Keywords State-owned enterprise • Synthetic fuel • Professional engineers • Management • Parliament

JEL Classification Q3 • Q4 • L1 • L2 • L5 • P4

G. Verhoef (✉)
Department of Accountancy, University of Johannesburg,
Auckland Park, South Africa

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_7

Introduction

Ideas, more than capital or technology, make the world of business go around. However, brilliant ideas wrapped around innovative technology can stall without adequate capital to transform them into reality. A small closed economy such as that of the newly constituted Union of South Africa by 1910 depended on the foreign capital to oil the wheels of the mining industry. After the establishment of the South African Customs Union in 1903, a common market was slowly developing amongst the four British colonies: the Cape Colony, Natal, Transvaal Colony and the Orange River Colony. These colonies established trade partnerships with other neighbouring countries such as Southern Rhodesia, Basutoland, Swaziland and Bechuanaland. By 1910, the mining industry contributed 27 % to the national GDP (Gross Domestic Product), with agriculture contributing 17 % and manufacturing only 6.7 % (Jones and Müller 1992, pp. 21–63). After 1910, a slow start was made with industrial development, a strategy gaining momentum to support political autonomy. A small group of sheltered industries developed in relation to the mining industry (explosives, machine repairs, footwear and clothing), but state-sanctioned industrial development only occurred after the 1920s with the introduction of tariff protection. Infant industries were given protection, and the state entered the market as a significant role player to stimulate industrialization. The most significant structural change in the South African economy occurred between 1920 and 1970. In 1965, the contribution of manufacturing to GDP exceeded the combined contribution of agriculture and mining (Kleu 1973; Du Plessis 1987; Marais 1981). Impressive industrial development after the Second World War contributed to two decades of unprecedented economic growth in South Africa, but by the mid-1970s, decline set in as the global economy contracted under the weight of the oil crisis and subsequent recession (Jones 2002, p. 2).

In South Africa, as an emerging nation, the public sector/state performed a central role during the "Golden Age" of industrial development. The state was driven by the ambition common to all developing nations, namely, to enhance economic self-sufficiency. In South Africa, this had direct implications for the diversification of the economy away from the heavy reliance on the foreign-controlled mining industry. In 1910, the Cullinan Commission was appointed to investigate the feasibility of establishing local industry, and its report in February 1912 recommended protection for "deserving" industries—such industries that would be beneficial to the economy and could become economically viable in the foreseeable future. In 1914, the first Customs Tariff Act, no. 26 of 1914 was passed to give effect to tariff pro-

posals put before Parliament to stimulate local industries. Two months after the passing of the act, the First World War broke out, placing strain on the import of essential goods. In effect, this stimulated local industries. Between 1915 and 1916 the value of gross industrial output rose by 65 % and by 53 % between 1918 and 1919 (Schumann 1938, pp. 168–170; Lumby 1982, pp. 200–202). The inward-looking industrial policy of the state since the beginning of the decade stimulated local industrial development and resulted in the growth in the relative contribution of manufacturing from 6 % of GDP in 1910 to 24 % in 1970 (Jones and Müller 1992, pp. 21–231). A considerable role was played by state-owned enterprises (SOEs), such as an electricity supply entity, an iron and steel producer and an investment body, the Industrial Development Corporation (IDC). This chapter considers the role played by the South African Coal, Oil and Gas Corporation (SASOL) in fostering industrial development in South Africa.

State-Owned Enterprises: Crowding Out or Enabling?

Post-war disappointment with weakened free-market economies and the ideological wave towards central planning gave rise to state intervention in economies across the globe. In Europe—such as Britain, France, the Netherlands and Austria—Labour, Socialist and Social Democrat political parties perceived nationalization as an instrument to achieve "genuine industrial democracy", while in fascist states such as Germany, Italy and Spain nationalization served to achieve autarky (Toninelli 2000, p. 6). Nationalization was sometimes motivated by the argument that it was necessary to reduce unemployment or to rectify market failure, such as a lack of information or capital, and so on, or that a natural monopoly would deliver cheaper utility goods through a monopoly than in a competitive market (Nove 1973). It was occasionally argued that the state could promote economic growth and social transformation and modernization (especially in developing countries), which was beyond the profit-driven motives of the private enterprise. Finally, state ownership was also justified on the grounds of rescue operations and bailouts in strategic industries (Toninelli 2000, p. 8). So while nationalization or the establishment of SOE was justified for contributing to stabilization of economies, the contrary effects by the later 1970s questioned the wisdom of state ownership (Nellis and Kikeri 1989). Wide-ranging scepticism was expressed about the state as an effective entrepreneur, and a growing literature on inefficiencies (Zingales 2012; Carney and Child 2012) conveyed the narrative of

privatization. Most of the scepticism was around the management of SOEs (Huang and Snell 2003; Bruton et al. 2015). Bruton et al. explore the perseverance of SOEs in a new hybrid structure in the twenty-first century, but in the historical context of the last half of the twentieth century, such hybrid structures are a more recent development.

In Africa, SOE in the post-independence era was motivated by political considerations of nationalism and autarky, as well as economic considerations of inadequate capital resources to set up national utilities or enterprise in strategic industries (Hopkins 1987; Fieldhouse 1986; Austen 1987, pp. 212–213, 237, 244). The case of SOE operating in mixed economies was more common in Africa, where only in Tanzania a centrally planned socialist economy based on "ujamaa" was introduced after decolonization. In South Africa, there was never any nationalization of private enterprise, but indeed, state agency in consolidating various capital-requiring enterprises to deliver national utility services (such as the Electricity Supply Commission[1] [ESCOM]) and industries perceived to be strategic for the development of local industries (such as the South African Iron and Steel Industrial Corporation—ISCOR).[2] The establishment of SASOL as a SOE, or a state-partnership firm benefiting from the entrepreneurial role performed by the state, was "enabling research

[1] During the 1920s the South African mining industry came under severe cost pressures, and the railways as well as the mining industry was in need of a steady and affordable supply of electricity. The government of General J.C. Smuts commissioned an investigation into the supply of electricity in South Africa, which reported on the essentiality of future sustained and increased supply for the development of the industrial sector. Opposing views of the state-mining officials and railways officials and the private sector controlling electricity supply in a monopolistic market to the mining industry caused heated debates in the House of Assembly when the Electricity Bill was debated in 1922. Moves by the private electricity supply company, the Victoria Fall Power Company, to build another big power station swung the sentiments in Parliament against the company, as fears arose of market monopolization. The Electricity Bill was passed in 1922 and established the ESCOM as legally designated "body corporate", not a state entity. ESCOM was separate from the state and relied on funding raised by the private and government loans. Its primary goal was "to stimulate the provision of a cheap and abundant supply of electricity" and to supply such electricity on a non-profit basis (Jones and Müller 1992, pp. 60–61; Christie 1984; Clarke 1994).

[2] Four different iron and steel manufacturing companies produced iron and steel in South Africa. The Lewis & Marks' Union Steel Company was established in 1913 in Pretoria. In Natal, the Newcastle Iron and Steel Company was formed in 1919. C.F. Delfos, a Dutch immigrant, established the South Africa Iron and Steel Corporation in 1920. These three concerns attempted to amalgamate their interests to establish a joint manufacturing plant in Pretoria to process mined iron ore, but a lack of capital led the South African government in 1927 to pass a bill in Parliament to establish the South African Iron and Steel Corporation (ISCOR). ISCOR was jointly controlled by the state and private shareholders, but vociferous opposition against the venture resulted in the defeat of the bill in the Senate, only to be passed by a joint session of the Senate as well as the House of Assembly (full Parliament) in 1928. The opposition was on two grounds: doubt about the viability of such an enterprise and opposition in principle against the use of such large amounts of public money for a single industrial enterprise. When finally shares were issued to the public in 1832, the timing was bad—in the aftermath of the depression, few applications were received, and the state eventually became virtually the only shareholder (ISCOR was privatized only 57 years later in 1989.) (Jones and Müller 1992, pp. 74–75; Clarke 1994, pp. 59–67).

discoveries to be developed into new products" (Mazzucato 2014). The discourse on SOEs balanced on efficiency considerations and public interest. Mazzucato (2014) argued not in favour of nationalization or the return of SOEs, but for an enabling or enterprising role for the state, to take a visionary risk-taking position by making long-term investments required to join science with enterprise. The state acts as a catalyst lead-investor, especially in the knowledge economy, where far-sighted investment in the innovative technology might be too risky for private sector investment.

The disillusionment with nationalization and SOEs was followed by privatization (Belloc 2014), but as noted by Bellini (2000), a new relationship between the state and enterprise developed. Bellini distinguishes between state ownership and state entrepreneurship. State ownership refers to state control of financial and industrial assets, while state entrepreneurship refers to state intervention in the development of the economy, not through regulations or incentives or policies to shape individual behaviour but through "direct assumption of some of the risks of individual entrepreneurs"—giving them the status of significant collective behaviour (Bellini 2000, p. 40). This interpretation of the role of the state post-SOEs aligns with the Mazzucato (2014) thesis and is relevant for the experiences of former SOEs. For the case study on SASOL, the enabling policy role of the state is important to understand the role performed by management in the SOE.

SASOL: Establishing a Strategic Industry

An interest in the production of fuel from coal was expressed in a White Paper of the South African government in 1927, outlining the available processes and the potential application thereof for South Africa (HEN 3513/539/2). The technology to manufacture liquid fuel from coal was pioneered by the German scientists Fischer and Tropsch, and fuel and diesel were produced from coal in Germany for use by the German armed forces during the Second World War. After the war, far more affordable energy options were available to Germany, and no further technological developments were conducted. In South Africa, extensive exploration activities by American and South African geologists during the late 1930s and 1940s failed to deliver any commercially viable deposits of oil or gas. Torbanite (or oil-shale) deposits were found and mined in collaboration with Anglo-Transvaal Consolidated Investment Corporation (Anglovaal) (Thorne and Kraemer 1954). Anglovaal acquired the sole licence in South Africa for the application of the IG Farben Fischer–Tropsch technology to manufacture fuel from coal in 1937, and Anglovaal

started preparations for the production of fuel, but required substantial capital to enable completion (Meiring 1986, pp. 221–222, 285–286).

The South African government considered the potential of the utilization of abundant coal resources for the production of fuel an attractive possibility, one which would supply fuel to the domestic market and stimulate domestic industrial development. If the technology could be made operational and commercialized, South Africa would be the world leader in the production of synthetic fuel, dependence on imported fuel could be reduced and extended industrial development secured. The establishment of SASOL displayed state caution, calculation and responsibility. At first, the state was cautious and calculated, but it was also acknowledged as a great opportunity for South Africa. The country imported its entire fuel requirement, had virtually no success in locating gas or oil reserves through exploration and was thus vulnerable to crises. During the experimental phase of Anglovaal's tests, the company communicated with state officials, emphasizing the need for state "assurances" (for funding) prior to confirmation of the economic potentialities of the technology (SAS Letter Hersov-Fourie, 13/8/36). The state was reluctant to issue guarantees for the £15 million Anglovaal asked for, reminding itself of the public outrage at the investment of state funds in a public enterprise, ISCOR, despite recommendations by Dr. H.J. van der Bijl, Chairman of ESCOM, to General J.C. Smuts (Prime Minister) that it was equally important for the country to control the production of a fair portion of its fuel requirements as to produce its own iron and steel (Clarke 1994, p. 211).

The state supported the experimental programme by passing the Liquid Fuel and Oil Act, no. 49 of 1947, and appointed the Liquid Fuel and Oil Advisory Board to advise the state on the future developments. The debate in the Parliament underlined two concerns: that the capital shortage in the Union would necessitate the investment of foreign capital in such an undertaking and that members of the Parliament wanted visible state control of compliance with licence conditions (Hansard, 60, 29/5/47, Col. 6075–6078, 6083–6084). It was becoming more apparent that the state might become more directly involved in what seemed to become a strategic industry for South Africa (Meiring 1986, p. 286; SAFLII, G 14637). In the Fourth Interim Report of the Liquid Fuel Advisory Board, explicit recommendation to the state was that any company producing fuel from coal should be under the control of the government (HEN 3327/514/2/5/1: Report 6/10/43).

The Fuel Advisory Board noted that a fuel-producing enterprise would be one of the single largest industrial enterprises established in South Africa and its success would depend on factors such as government policies and taxation. The Advisory Board drew up a licence which would give this new

industry security for a number of years. This licence was finalized in 1949 (Anastai 1980, p. 5). Rousseau doubted Anglovaal's ability to raise sufficient funding towards the construction of a large-scale plant to affect economies of scale in the production of fuel from coal. SATMAR (South African Torbanite Metallurgical Agency for Research) (the Anglovaal/USA joint venture for the exploration of torbanite/oil-shale and production of fuel from torbanite) had not by the beginning of 1949 overcome critical technical difficulties to enable production, but he expected the American research to have reached sufficient sophistication within two to three years to enable the South African industry to expand beyond the exploratory or experimental phase. Rousseau suggested the construction of an exploratory gasification plant, which could be expanded once critical technical progress permitted (SAS 8/18: Letter P.E. Rousseau – F.J. du Toit, 3/2/49). Anglovaal failed to raise the required capital to complete the technological development for the sustainable commercialization of production—not even from the World Bank. Competing mining interests in the form of new rich gold deposits in the Orange Free State, the devaluation of the South African currency in 1949 and the overall shortage of capital in the Union forced Anglovaal to choose between the high-risk fuel experiment and guaranteed gold mining success. The choice was obvious, and since the state showed a growing interest in exploring the fuel development programme, Anglovaal eventually relinquished the Fischer–Tropsch licence to the state (HEN 3209/506/1/4/1: SASOL, Annual report 1953, p. 1).

The failure by Anglovaal to secure the required capital paved the way for the state to enable the groundbreaking industrial innovation for South Africa. The Minister of Economic Affairs, Eric Louw, appointed an Interim Committee to investigate the advisability for the state of establishing an oil from coal industry in South Africa (HEN 3513/539/2). The state availed itself of the services of the following persons: Dr. P.E. Rousseau (Chairman), Dr. F.J. du Toit, Dr. M.S. Louw, Mr. A. Fickney and Mr. S.G. Menell, Managing Director at Anglovaal. The Minister of Economic Affairs appointed the Advisory Board to assess the viability of producing liquid fuel from coal, to evaluate the economic and financial implications of such an enterprise and to advise on the direction forward for South Africa. The individuals on the Liquid Fuel and Oil Advisory Board were economists, experts in engineering, industrial finance and mining. Dr. Pierre Etienne Rousseau graduated from the University of Stellenbosch in 1930 with a Master of Science degree and entered the employment of ISCOR as a trainee engineer. Soon he was dispatched to England and Germany to acquire experience in coal beneficiation. Upon return he was appointed in 1938 by Anglovaal as a research engineer at SATMAR. At SATMAR, Rousseau worked with Dr. H.J. van Eck, who

completed a Ph.D. in Economics in Germany in 1922. Van Eck worked as an economist at ESCOM, ISCOR and Anglovaal, before his appointment as Managing Director of the IDC. Rousseau was appointed industrial adviser to *Federale Volksbeleggings*, an Afrikaner-controlled industrial group, and Managing Director in 1945 (Scannell 1965, pp. 683, 842). Rousseau brought wide experience from mining engineering, managerial experience as well as the technical expertise in fuel production at SATMAR to the Advisory Board. Du Toit was an economist, who entered the civil service as a senior economist to the Department of Agriculture. He served as the South African trade commissioner in various countries, inter alia the United Kingdom, and was appointed the first Chairman of the Council for the Development of Natural Resources. Du Toit had a distinguished career as civil servant since 1925 and earned trust as a public official (Coetzee 1981, pp. 145–146). Dr. Marthinus Smuts Louw was the first Afrikaans actuary and FSAA (Fellow of the Society of the Academy of Actuaries) in Scotland, employed at the South African National Life Assurance Company (Sanlam), where he served as Manager since 1935 and as Managing Director since 1946. Louw was responsible for the establishment of an investment vehicle, Bonuskor, in Sanlam, for policy holders to invest in listed equity, especially industrial shares. Louw devoted himself to encouraging South Africans to invest in equity so as to foster domestic industrial development (SA/6/1/7 MS, Louw archive). Andrew Faickney was a British mining engineer, employed at Anglovaal, who was intimately involved in the initial testing and manufacturing processes to produce fuel from coal in South Africa. These persons had established themselves either in the technical field of mining engineering and the production of fuel from coal or as economists and actuaries knowledgeable about the macro-context of the development of the South African economy—and they were servants of the South African domestic industrial development idealism.

Considering the public criticism against the state funding of ISCOR and the potential delays that might be caused by Parliamentary debates and consultation, the state opted for a strategy to establish a separate company incorporated in terms of the Companies' Act of 1926, registered with the Registrar of Companies, to commence the production of fuel from coal. SASOL was incorporated in September 1950 as an ordinary public company. The Industrial Development Act of 1942, amended shortly after promulgation, provided for the IDC as a state enterprise with its own charter, not only to assist private entrepreneurs in establishing industrial enterprise but, in terms of Clause 3(a), to establish industrial enterprise on its own. The SASOL was registered as an independent company, with the IDC as the sole shareholder (HEN 3514/01/530/4: Memorandum and Articles of Association). The

majority of SASOL directors, including the chairman, and the remaining directors were appointed by the IDC. SASOL operates as a normal business concern, with an autonomous Board of Directors, subject to South African company law and taxation.

The state wanted to establish a SOE with private participation as it had done in the case of ISCOR, ESCOM and the IDC. There was no nationalization of private assets nor a strategy to act unilaterally to the exclusion of private enterprise. In Parliament, there was repeated insistence that the public should be offered a stake in the SOEs, and regardless of the negligible number of private shareholders effectively taking up the offer, the principle was established that state corporations were characterized by joint public/private ownership (Clarke 1994, p. 161). From the outset the state was concerned about potential limitations on the efficiency of such an enterprise such as SASOL and wanted to secure measures from the very beginning to facilitate optimal efficiency. In the case of SASOL, the capital requirements, the lack of success on the side of Anglovaal to secure the capital and the strategic importance of the innovative technological advancement for South Africa finally resulted in the IDC route. Under the post-war capital restrained conditions, the IDC was cautious of the pressures private shareholding might place on SASOL to make dividend payments and service high interest on private debentures at a time when the successful roll-out of production was still uncertain. The IDC therefore preferred a degree of financial flexibility for SASOL during the establishment years, since uncertainty about specific operational aspects were expected to impair profit expectations at the beginning. Private shareholders did not acquire equity in SASOL, but the SASOL management made it clear that in future, once the industry had been established, the company must list on the local bourse. Du Toit wrote to the Minister of Economic Affairs, Eric Louw, in November 1950, that "sufficient flexibility" in the funding of SASOL was essential in order to ensure that in the longer term, SASOL could operate free from state control if such a development was vital to the development of the liquid fuel industry (HEN 3512/539/1/7/50: letter Du Toit—Minister of Economic Affairs, 7/11/50). In a public lecture in 1951, Du Toit was adamant that state intervention in the economy naturally implied some responsibility for the state, but that the South African society was "not prepared to tolerate full state control in the economy, … since that would equate to a totalitarian, socialist or communist dispensation, that could not be introduced in our country" (*my translation from Afrikaans*—Du Toit 1951, p. 125). Du Toit reiterated in 1953 that SASOL will inform the government as soon as it no longer needs "special treatment" (HEN 4698, SC8/20/1547: Letter Du Toit—Minister of Economic Affairs, 23/11/53).

SASOL: Managing a Strategic Industry

The newly constituted SASOL Board of Directors and the management team worked as an integrated team, with a strong sense of purpose to succeed in the interest of South African industrialization. The Board of Directors consisted of the following persons: Dr. F.J. du Toit, Chairman, Drs H.J. van Eck, M.S. Louw, Mr. J.C. McIntyre and Dr. P.E. Rousseau. Mr. A.P. Faickney, who had worked on the Anglovaal fuel programme, was appointed as honorary consultant. Rousseau was supported by David de Villiers, as Secretary; J.F. (Johnny) van der Merwe, as Deputy General Manager Operations; and Bill Neale-May, as Operations Manager. The position of Rousseau was important: he was not a civil servant who danced to the tunes of a political authority, but was the expert engineer, who, together with Van Eck, had completed in-depth investigations into the specifications of the American Kellogg technological advances in the process to manufacture liquid fuel from coal. Rousseau was confident, after his visit to the United States, that SASOL could gain from the collaboration with Kellogg on the construction of the first SASOL project (HEN 3512/506/1/4/1: SASOL, Annual Report, 30/6/53; SAS—8/18: Historical documents: Report of the Kellogg proposal, January 1951). Rousseau, Van der Merwe and Neale-May had worked together in SATMAR, the Anglovaal subsidiary producing fuel from torbanite.

The special relationship with the state manifested on two levels. First, the directors and management were appointed by the "owner", which in this case was the IDC, a SOE. Management was appointed on the basis of expertise and experience and reported to the IDC as shareholder. On the second level, the state secured the entire share and working capital of the enterprise. Following the long history of national aspiration towards the development of a liquid fuels industry, a sense of national achievement accompanied the final establishment of SASOL, but public and opposition parties expressed scepticism about the enormous capital commitment by the state. The potential success depended on sustained state support. This relationship was acknowledged by Rousseau, describing SASOL as the strategy of government to enter the oil industry, but that this aspiration placed additional responsibility on SASOL to place the interests of South Africa first when taking on such an enterprise (HEN 3513/H4/7/1: Algemeen, Letter Rousseau—Minister of Economic Affairs, 10/12/69). Management operated autonomously, without any apparent interference from the IDC and other government Ministers. SASOL nevertheless had to respond to repeated requests for information on the progress at the SASOL construction site, the production process and expected profitability for purposes of responses to Parliamentary questions

and justification to the Minister of Finance regarding capital extension during the establishment phase (HEN 3512/539/2: Letter Rousseau—Secretary of Trade and Industry, 20/11/53; HEN 3512/539/2: Telegram Parliament, 25/2/54; 9/6/55). Rousseau performed the central managerial function, and he consulted regularly with Dr. van Eck as Managing Director of the IDC but also as member of the SASOL Board of Directors. Management was highly centralized and integrated in the person of Rousseau, who described himself as "a conservative person" who was cautious of pre-empting production and profit predictions (HEN 3512/539/2: Letter Rousseau—Secretary of Trade and Industry, 20/11/53).

SASOL was incorporated on 26 September 1950 with authorized share capital of £3,000,000 (SASOL, Annual Report 1951, p. 1). When operations commenced, the issued share capital had increased to £18,000,000 in 1951, but soon escalated to in excess of £40,000,000 before actual fuel was produced. The IDC acknowledged that "in the establishment of a new industry it is essential, in its initial stages, to maintain the greatest flexibility in the constitution and capital structure of the organization so that the door is left open for the organization to assume the form of a public utility such as for example, ESCOM or the Rand Water Board, at a later date should this be found desirable … Flexibility is therefore highly desirable and only after the presently proposed unit is in full operation will it be possible finally to determine the most suitable base upon which to develop the industry" (HEN 3205/506/1/4/2: IDC, Memorandum re SASOL, 2/3/51). Soon after the construction of the SASOL plant commenced, the Chairman of the Board, Du Toit, engaged in correspondence with the Minister of Economic Affairs explaining the need for patient, sustained and unwavering government backing for the realization of a national undertaking of the innovative and extensive scope of SASOL before the state could see returns on such a "long-term" project (HEN 4698, SC8/20/1547: Letter Du Toit—Minister of Economic Affairs, 23/11/53). The state established a SOE with overt managerial autonomy and clear leadership by the Board of Directors.

The immediate operational aspects of SASOL were attended to by Rousseau and his management team. These responsibilities included the construction of the liquid fuel plant, the planning and building of the town Sasolburg, where employees would live, the development of a coal mine to supply coal for processing and a marketing company to market the full range of SASOL products. The first four years were trying times, and the Chairman reported comprehensively on the progress on all fronts, but alerted the public of the capital intensity of the project and warned against easy comparisons with the capital costs of petroleum refineries. SASOL was different since it com-

menced operations from low-grade indigenous coal, while refineries depend on imported crude oil (HEN 3209/506/1/4/1: SASOL, Annual Report 1953, p. 3). The town Sasolburg[3] took shape, the Sigma coal mine delivered the first coal to SASOL in September 1953 and the SASOL Marketing Company (SMC) prepared the market for the distribution of SASOL products—even in the Netherlands (HEN 3512/539/2: Letter Secretary Trade and Industry—Dutch High Commissioner, Den Haag, 1/10/54).

Construction of the plant commenced in June 1952 under the supervision of Kellogg engineers from the United States. Progress with the actual processing of coal into liquid fuel ran into unforeseen technical complications, for which Rousseau held M.W. Kellogg accountable. Rousseau nevertheless expressed his deepest disappointment in confiding to such an extent in the Kellogg technology while he noted the immense responsibility on his and Du Toit's shoulders to succeed with SASOL. He felt the "entire South African public were practically holding him and Du Toit accountable" for the progress of SASOL (HEN 3512/539/2: SASOL, report on activities in 1954, 18/1/55; SAS: 30/11/1/M W Kellogg & Co: Letter PE Rousseau—Du Toit, 26/5/55). In response to the disappointment with the Kellogg technology, Rousseau insisted on constructing SASOL's own pilot plant, from where research could be conducted for the future development of the local chemical industry. In his report of 1954, he explained that experience overseas had taught that a chemical industry is still born if the industry does not engage actively in research on the improvement of processes, expansion of the industry and development of its products. Rousseau established SASOL Research and entered into research collaboration with other research institutions, for example, on water and waste water management (HEN 3512/539/2: SASOL Report, 18/1/55).

The Minister of Trade and Industry lodged repeated enquiries into the expected profitability of SASOL, the expected date when the public would be able to fill their motorcars with SASOL fuel, the capacity of production and various other specifications pertaining to the quality of the fuel. Rousseau always responded politely—thanking the Minister for the sacrifices made by government to support SASOL—but offered conservative estimates to each question (HEN 3512/539/2: Letter PE Rousseau—Minister Trade & Industry, 10/2/54). The correspondence between Rousseau and the different

[3] The town Sasolburg was erected in the North Eastern Free State Province, a location 80 kilometres from Johannesburg or 27 kilometres from Vereeniging and 17 kilometres from Vanderbijlpark, the growing industrial hub of the South Eastern Transvaal Province. In Vanderbijlpark, ISCOR had a large plant, which assisted accessibility for SASOL to iron, steel and other mechanical equipment required for the construction of the gasification plant. Sasolburg is also on the banks of the Vaal River, a major source of water supply and located on top of a major coal field, which enabled the construction of SASOL's Sigma mine.

government departments and ministers depicts the arm's-length relationship between the state and SASOL in terms of management of the enterprise during the establishment phase. In the Chairman's address, Du Toit conveyed the highest sense of responsibility exercised by the Board and management in implementing the task to establishing SASOL and producing fuel from coal. The rationale for this was the unprecedented benefit to the country—transfer of hitherto unknown skills and technology. Du Toit claimed, "It can be stated without exaggeration that SASOL is a technical school and university in the field …" (SASOL, Annual Report 1954, p. 2). This point was reiterated in 1958 when Du Toit stressed again the "unique and without parallel … accumulation of knowledge and experience", the sourcing of spares for the plant equipment from local manufacturers "for the general benefit of South Africa" (SASOL, Annual Report 1958, pp. 6–7). The notion of trustworthy management, expert supervision on the sophisticated technical processes and serving the greater good of the country rang throughout annual reports but displayed the skilful managerial manipulation of the relationship of trust with the state in executing their responsibilities.

Fears were expressed in the public media about the possibility that SASOL would establish its own subsidiary secondary industries. In response, the Secretary to the Minister reiterated by stating that "the government would not wish to encroach on the turf of private industry". He quoted a speech by the Minister of Economic Affairs: "I can set their minds at rest by informing them that such is not the intention of the SASOL directorate, nor is it the policy of the government, which is the only shareholder. SASOL's policy will be to process its products as far as is necessary to make them saleable. Excluding the oil and petrol field, it will not concern itself with retail trade. Products which will serve as raw materials for the chemical and secondary industry, will be supplied to such industries. It will be the government's policy that SASOL should stimulate the growth of secondary chemical industries, and not to encroach on their field. It is hoped that such industries will establish themselves close to the source of supply" (HEN 3512/539/2: Letter Secretary Trade and Industry—SA Trade Commissioner, 23/10/54; SASOL, Annual Report 1953, p. 3). SASOL as SOE was therefore managed as a catalyst for private industrial development in South Africa, which explains the freedom of management granted to the engineering experts assigned to the task. The roles seemed clearly defined: state provides capital and the experts manage the company's production processes.

In the public domain stern criticism was levelled against the persistent escalation of capital requirements at SASOL. Mr. Hopewell, Member of Parliament for Pinetown (an industrial area around the port city of Durban),

lambasted the Minister of Finance about the inability of government to give clear answers about production targets, timing of production, rising costs and the impact of SASOL on domestic petrol prices. The Minister of Finance defended state protection of SASOL, not as a blanket protection to all industries against imported goods, but as an interim measure during capital shortages, and if an industry contributed essential production to the developing industrial sector. It was stated that government would not protect mere assembly plants, but industries adding new goods to the market. As for SASOL, the Minister explained that any new industry was expected to have "teething problems" and that it could not be expected from any new industry to be profitable from the word go. He emphasized that SASOL was a brand-new industry, one of its kind in the world, combining two production processes, therefore justified in receiving state support and patience (Hansard, 87, 24/2/55: Column 1798–1879). SASOL's management fully appreciated the unwavering government support. The confidence in the leadership and perseverance of Rousseau and the management team in Sasolburg were finally rewarded when the first products emerged from the SASOL plant. The first creosote was produced in March 1955 and other by-products such as paraffin, waxes, ammonia liquor, subsequently converted to ammonium sulphate, tar primate and pitch, crude tar and acids, and aromatic solvents, which were used as the inputs to other chemical industries. These chemical by-products were released on to the market in 1955. On 23 August 1955, the synthol reactor completed the first reaction, allowing SASOL employees to fill their cars with SASOL fuel in November 1955. Technical difficulties forced SASOL to shut the production of petrol down a few days after producing the first petrol, but by mid-April 1956, production was back on track. An agreement was signed between SATMAR and SMC, whereby SMC acquired all the assets of the SATMAR marketing organization, thus enabling SMC to market all SASOL's and SATMAR's products (Hansard, 90, 25/4/56, Col. 4523, 4527; HEN 5312/539/2/ IDC, Annual Report 1955).

The magnitude of the construction at Sasolburg was unique in South Africa by the mid-1950s. The construction entailed more than 16 million man-hours, 80,000 cubic metres of concrete, 320 kilometres of pipe was laid, 32,000 tons of equipment were imported, and an equivalent amount of structural and reinforcement steel and equipment was supplied by South African industries. A total labour force of 2400 whites and 3000 blacks worked on the construction of the plant and the development of the town (HEN 3512/539/2: IDC, Annual Report 1955; HEN 3513/506/1/4/1: Report on SASOL production 1956). Internationally, interest was awakened in the operations of SASOL—leading to regular requests from overseas gas indus-

tries such as the West Midlands Gas Board (HEN 3512/539/2: Letter Senior Trade Commissioner—Secretary of Commerce and Industries, 30/10/56), but Rousseau was cautious of disclosing too much of the technical detail of the plant and the process since as he explained "we are interested in earning income by selling our expertise, and are not too interested in disclosing to foreign visitors the nature of our industry" (HEN 3512/539/2: Letter Rousseau—Secretary Trade and Industry, 15/11/56).

SASOL operated at a loss until the early 1960s.The government was subjected to severe public criticism on cost escalation and delayed production. In Parliament, the opposition requested the submission of the SASOL financial statements to Parliament, but the Minister declined describing them as "an internal matter" of the IDC (HEN 3209/506/1/4/1: Written response to question, 14/3/56). The Prime Minister[4] discussed the full progress of SASOL in his budget speech in the Parliament in 1956 amidst repeated opposition outcries against the capital expenditure of the SASOL project. More time to debate the corporation was scheduled during the budget of the Minister of Trade and Industry as well as the Minister of Finance (Hansard, 90: 20/3/56: Col. 2951–2954; 25/4/56, Col. 4523–4528; HEN 3209/506/1/4/1: Letter Office of Prime Minister, 30/4/56). Rousseau conscientiously kept the Minister informed of the developments at SASOL, taking full responsibility for the delay in going into production, but he insisted on keeping the detailed technical information secret—not to be used either inside or outside the Parliament. Rousseau kept the detail of how SASOL modified the Kellogg reactor technology confined to the corporation until its technology could be patented and then exported. Rousseau emphasized the courageous determination of engineers and technicians who "ran through fire to shut down valves" during the experimental phase of the plant. He offered detailed explanations of how the Kellogg reactor, once control of it was taken over from the Americans in November 1957, was modified by SASOL engineers in the research laboratories until the fuel was finally produced. He refrained from disclosing too much detail. The most important aspect of his letter was the detailed explanation of the SASOL modification of the Kellogg reactor, which was implemented against the advice of Kellogg. This technological innovation was the turning point in the success of SASOL. This modification cost SASOL another five weeks of experimentation, but Rousseau emphasized that it introduced an element to the production process which kept SASOL's reactors cleaner and in the long run, more efficient. By 1958, the production at SASOL entered the so-called Consolidation Scheme. This was the stream-

[4] The Prime Minister at the time was J.G. Strijdom.

lining of operations based on the experience SASOL engineers and technicians had gained from their innovation on the Kellogg process. SASOL also added a third reactor to the original Kellogg process, which enabled the operation of two reactors all the time. Rousseau managed the release of sensitive information personally. He stated clearly to the Minister that certain questions he was not prepared to answer, but that the need for further capital depended on how soon the government would introduce excise duties on locally manufactured synthetic fuel products and how soon SASOL could increase production to scale (HEN 3210/506/1/4/1: Letter Rousseau—Secretary of Trade and Industry, 26/3/58; HEN 3209/506/2/1/4: Memorandum to Minister of Trade and Industry, 8/1/58; HEN 3513/539/3: SASOL, Annual Report 1958, p. 5). Rousseau was taking full responsibility for the development of the new technology at SASOL and addressed the politicians professionally and politely, but did not allow the serious financial constraints to derail the progress of innovation and the establishment of the enterprise (Hansard, 90, 2/5/56, Col. 5083). The major achievement of SASOL for South Africa was Rousseau's overriding concern, and he was trusted by the government.

SASOL was struggling to service the interest on its loans. Rousseau had to convince the Minister of Economic Affairs, Dr. Nico Diederichs, that it was imperative that SASOL improve the existing production plant for significant enhancement of production efficiency and scale. He expressed his utter shock at sensing "doubt" in the Cabinet about the "modest" plans of SASOL to engage increasingly in the broader chemical products to supplement petrol manufacturing. A strongly worded letter explained the groundbreaking innovation at SASOL, achieved by people who dedicated their lives to the project, "that had no precedent in any place in the world". Rousseau asked the Minister to support the SASOL Board's plans to complete the process by adhering to SASOL's need for further capital. Rousseau addressed members of government, members of the Cabinet and fellow Afrikaners but had to offer strong justification for sustained financial support from the state to allow the SASOL pioneers the opportunity to complete their inspired work. He engaged in extended correspondence with the Minister, justifying the operations and strategic direction of the corporation (HEN 3209/506/1/4/1, vol. 4: Letter Rousseau—Minister of Economic Affairs, 26/2/59; Letter Rousseau—Minister of Economic Affairs, 7/4/59). In 1956, the Minister of Finance mooted the possibility of recapitalization of SASOL by means of the conversion of loans to share capital. Rousseau campaigned for more than two years for either a reduction of the excise duty payable by SASOL or a postponement or duty-holiday between 1958 and 1963, to allow SASOL to finalize the technical innovations the corporation had made on the Kellogg technology and

streamline the production of fuel and other chemicals. Rousseau motivated extended financial support to SASOL on the grounds of the unexpected complications which manifested soon after SASOL commence with fuel production, the lower international oil price and the decision by the Cabinet to observe the production of fuel from coal as of primary strategic importance to South Africa. His projections estimated sustained profitability at SASOL from 1961 onwards, provided a temporary stay of excise duty. Given a five-year support plan, the existing plant would become economically viable and strategic expansion, which will facilitate improved production within two years, will be effected (HEN 3512/539/2: Letter Rousseau—Secretary of Trade and Industry, 6/1/58; HEN 3513/539/3: Memorandum Rousseau—Minister Economic Affairs, 8/1/58). Rousseau had a serious problem in convincing the Treasury to accede to SASOL's request—the Minister of Finance was unwilling to forfeit the substantial income from excise duties (in excess of £3,640,000—according to SASOL's own calculations) at a time "when the country needed it badly" (HEN 3513/539/3: Letter Secretary Finance—Rousseau, 1/3/58).

Rousseau finally convinced the IDC to devise a recapitalization plan for SASOL. More and more international enquiries were made into SASOL products.[5] The 1959 negotiated financial recapitalization was the following: the government subscribed in cash for £12,000,000 new "B" shares of £1 each, in SASOL. In effect, this increased the issued share capital from £46,200,000 to £58,200,000. To the IDC this meant an initial loss of interest, but the Chairman of the IDC (Van Eck) reported, "I am satisfied that the course which was followed was the logical in the circumstances and in the best interest of the long-term development of the chemical industry in South Africa" (HEN 3209/506/1/4/1/vol. 4/ Appendix: IDC, Annual Report, 30/6/59; Hansard, 90, 2/5/56, Col. 5083; HEN 3209/506/1/4/1/vol. 4: SASOL, Annual Report, 1/12/59; HEN 3513/539/3: Letter Secretary Finance–SASOL, 26/3/59).

Strong managerial capabilities determined the successful completion of the establishment of the fuel plant in Sasolburg. Rousseau insisted on systematic experimentation with step-like adjustments to the existing Kellogg technology through research in its own pilot plant research unit in Sasolburg. He explained each small step of experimentation to the Board and finally to the Minister. It was clear that he made it his personal duty to motivate engineers, researchers

[5] In June 1958, Messers. Swift and Company, Ltd., Sydney, Australia, requested details about the availability of SASOL's high-melting-point synthetic paraffin wax (SAB: HEN 3513/538/3: Letter Secretary Commerce and Industry—SASOL, 6/6/58).

and technicians to persevere while addressing public outcries against the massive capital expenditure of the enterprise. Rousseau acknowledged the loyalty and commitment of the managerial team, the expert staff and the researchers, but the breakthrough came only later. It was conveyed in personal interviews that Rousseau was often found praying on his knees in his office (Sparks 2012, pp. 68–69). The sense of responsibility for the greater good of South Africa was motivating the operations at SASOL. In 1961, the IDC publicly announced that SASOL was finally operating on a profit-basis since early in 1961 (HEN 3210/506/1/4/vol. 4: IDC, Chairman's Report, 20/9/61). When Dr. du Toit passed away suddenly in 1961, Rousseau was appointed the Chairman and Managing Director (until 1963) of SASOL, succeeded by De Villiers, the first Secretary of SASOL in January 1963. Management and the Board remained in close collaboration. Rousseau was directly involved in day-to-day operations simply because of his inextricability with the process.

"Rounding Off" and Privatize

The Minister of Economic Affairs requested Rousseau never to talk in public about the "expansion" of SASOL operations—he preferred reference to "rounding off" of SASOL's operations, given the vociferous criticism in the Parliament by the opposition against the capital exposure to SASOL, the protection afforded to SASOL through lower excise duties and the lack of profitability at that stage (HEN 3210/506/1/4/1: Letter Rousseau—Secretary of Trade and Industry, 26/3/58). The initial expectation was that SASOL would be profitable within a relatively short time, but the modifications required on the Kellogg technology were unforeseen and South African engineers learnt it by doing. More production glitches had to be ironed out during the late 1950s, but the overall impact on the South African industrial sector was extensive. The local engineering industry manufactured many of the large number of spare parts required by SASOL, thus stimulating the local industry and saving SASOL costs on expensive imports. SASOL sourced more than 60 % of its standby equipment locally. As the production of synthetic fuel at SASOL progressed, the need for larger capacity developed. The demand for SASOL products from African countries rose to the point where SASOL had to decline export requests since its total production was absorbed by domestic industries (HEN 3512/539/3: Various correspondence: SASOL—Trade Commissioners, 1958–1963).

The production technology at SASOL's Sasolburg plant remained essentially unchanged and basic since the early 1960s (Rahmim 2003). Product diversifica-

tion commenced in all earnest once the establishment phase was over. SASOL started with the production of butadiene and styrene for the synthetic rubber industry and ammonia for the commercial fertilizer industry, as well as increasing gas supplies for domestic and commercial use. SASOL formed a special vehicle for the distribution of its gas—GASCOR (Gas Corporation of South Africa)—in 1966. In 1967, SASOL joined other petrol companies to establish the first South African oil refinery, Natref—National Petroleum Refiners. As a 64% shareholder in Natref, SASOL had a profound impact on the use of advanced technology at the refinery. SASOL technology was installed in the refinery and emerged as one of the world's most technologically advanced and efficient refineries of heavy crude oil to petrol, diesel and other white products (SASOL, Annual Report 1964, p. 2, 1965, pp. 2–3; SASOL, 50 Years Innovation 2000, p. 29).

Speculation in the printed media went around since the mid-1960s that a "second SASOL" was being planned (SASOL, Annual Report 1966, p. 2), but strong anti-inflationary measures by the state placed the brakes on planned expansion. SMC, a full subsidiary of SASOL, marketed SASOL's products, as well as its fuel. An agreement was signed between SASOL and other oil companies, preventing SASOL from competing in fuel sales by operating its own service stations. SASOL was allowed by this regulation only to sell fuel at a dedicated SASOL pump on the premises of fuel stations of other oil companies (Lambrechts 1998). This agreement only lapsed in the next century, but in anticipation of that future date, SASOL planned ahead. In 1965 and 1966, SASOL resumed extensive capital expenditure (in excess of R60 million), which testified to management's confidence in the capacity of the enterprise to supply the growing demand for its products (SASOL, Annual Report 1966, p. 3). By the early 1970s, global developments in the oil industry coincided with a well-positioned SASOL, able to respond to domestic demand for gas, fuel and subsidiary products.

The international turmoil and the sudden collapse of the political power of the Shah in Iran placed the comfortable agreement between SASOL and the National Iranian Oil Company in disarray. Natref could no longer source crude oil from Iran. In the domestic market SASOL's diversification and expansion exerted pressure on its capital and human resources. Rousseau announced in the 1973 annual report that "further research" was undertaken into the expansion of SASOL's operations (SASOL, Annual Report 1973, p. 2). The capital costs of planned extension into SASOL 2 was R2.5 billion and of a third plant, SASOL 3, R3.3 billion (approximately equal to 8.5 % of the South African GDP for SASOL 2 and 7.7 % for SASOL 3 at that stage). Rousseau had insisted on a strong business orientation in the management of SASOL since it commenced operations as opposed to it being run as a state corporation. This

emphasis on a market-orientated business strategy driven by profit ruled out further expansion at a time of low international oil prices. In the 1970s, when the international oil price shot up rapidly in the wake of the oil crises and the political changes in Iran (which was a major oil supplier to South Africa), his successor Dr. D.P. de Villiers was able to respond positively to government's demand for the expansion of SASOL fuel supplies. The company had earned modest profits for almost a decade of high international oil prices.[6] The SASOL management insisted on two conditions for production expansion: SASOL must be privatized and listed on the Johannesburg Securities Exchange (JSE), and tariff protection extended to the synthetic fuel industry. Before production commenced at Secunda[7] in 1980, SASOL was a JSE listed company (SASOL was listed in 1979 with a market capitalisation of R800 million). Further OPEC (Organisation of Petroleum Exporting Countries) price manipulation then led to the planning, building and bringing into operation of SASOL 3 within the scope of three years. Listing and expansion resulted in exponential growth. By 1980, employment in the SASOL Group of companies had quintupled, assets had increased 14 times and exceeded R11 billion, and pre-tax operating income had risen 11-fold. The restructuring of SASOL was enabled by the listing on the JSE. Private investors acquired the state's shareholding in SASOL 1, as well as 50 % in both SASOL 2 and SASOL 3.

The SASOL listing was the first step by SASOL management to free itself from the "sheltering" by government (Bates 1981) while simultaneously accessing capital for expansion in the market. This conscious move away from the state did not terminate the regulatory control by government of SASOL's operations but was the beginning of the formulation of a strategy by a sheltered firm to expand outside the restricted domestic market.

Conclusion

The transition of SASOL from a SOE only 30 years after establishment signalled the success with which the establishment of a cornerstone industry in an economy can overcome state protection and rise as a champion of local

[6] The unappropriated profit of SASOL rose from R1,355,000 in 1960 to R7,640,000 in 1970—a rise of 464 % within only one decade.

[7] Secunda, a purpose-built town, is located about 130 kilometres east of Johannesburg (in the modern-day Mpumalanga Province) in a region of extensive coal reserves and adequate water supplies and so-named by Sasol because it was South Africa's second oil-from-coal extraction plant. The plants also produce a great variety of chemicals as well as gasoline; ancillary industries produce fertilizers, plastics, man-made fibres, and detergents.

and global industry. The privatization of SASOL was not as a result of a disenchantment with the SOE but because the enterprise management set as a firm strategy to use the protection of the state to establish itself and then position itself in the open market. Management understood the necessity of state protection to establish this groundbreaking industry but realized that final growth, expansion and diversification were dependent on market alignment. Throughout the period under review, management at SASOL perceived their role as establishing an industry that was destined to be the cornerstone and catalyst of local industrial development. Management, Rousseau in particular, repeatedly recognized and applauded the innovative role of the South African engineering industry, the engineers themselves and the labour force, in manufacturing for the first time in the history of South African industry, the parts required to build the SASOL plant in Sasolburg. Management and members of the Board of Directors understood their role to be responsible for improved national income through the successful establishment and management of operations at SASOL—ultimately in the interest of white and black in South Africa (Du Toit 1951, p. 124).

The state indeed took a risk (as Mazzucato suggests) in establishing SASOL. The massive escalation in estimated capital requirement from £18 million in 1950 to £48 million by the early 1960s was a massive unforeseen commitment. The state indeed took a "calculated" risk, but the calculation was underpinned by the expertise hired to implement the experiment. The management of SASOL was experienced engineers, mining experts and economists. They were involved in some of the earliest investigations into the establishment of a fuel from coal industry in South Africa, and they knew each other. The managerial team was not appointed for party political loyalty, but for professional expertise. The state did not interfere in management decision or attempt to remove management when delays occurred in the production. The professional management was allowed to focus on getting the technology operational, managing the risks of technology failure and developing appropriate technology applications for local conditions. Management maintained a professional relationship with the state, one that was not always "cosy", and did not always get the concessions asked for. Tense relationships with the Minister of Finance, Diederichs, at times, required strategic leadership in maintaining the strategic company plan. The arm's-length relationship was also illustrated by the selective release of information by Rousseau to the Minister of Economic Affairs. Management operated a centralized bureaucratic managerial approach, only to pave the way for a multi-divisional management structure once the listed enterprise operated in three production plants. The company established two subsidiaries—SMC

and SASOL Township. The latter provided the accommodation for the workforce, while the marketing company sold the products. Both the subsidiaries were closely managed from the centre.

The success of SASOL in establishing a commercially viable fuel from coal industry in South Africa, and to expand operations into the wider chemical industry, was ultimately dependent on the state's industrial policy and funding commitment during the establishment phase, as well as the quality of management. The managerial team consisted of experts in their respective professional fields and management sharing national patriotism and the vision of the industrial take-off of the domestic economy. SASOL did not have an ideological confrontation with the state when the time had come to privatize the enterprise because the managerial autonomy acknowledged by the state enabled the execution of appropriate strategies for the company since inception. Management shared the vision of a local industrial champion and was permitted to implement the steps required to realize that ambition. The state was unable to provide the capital required for the expansion into SASOL 2 and SASOL 3. Developments in SASOL technology mandated the expansion into global markets. Privatization was the obvious course of action.

Bibliography

Anastai J.L. (1980), *SASOL: South Africa's Oil from Coal Story. Background and Environmental Assessment*, Washington US Environmental Protection Agency EPA-600/8-80-002.

Austen R.A. (1987), *African Economic History: Internal Development and External Dependency*, London, James Currey.

Bates R. (1981), *Markets and Strategies in Tropical Africa*, Berkeley, University of California Press.

Bellini N. (2000), «The Decline of State-Owned Enterprise and the New Foundations of the State-Industry Relationship», in Toninelli P.A., *The Rise and Fall of State-Owned Enterprise in the Western World*, Cambridge University Press, pp. 25–48.

Belloc F. (2014), «Innovation in State-owned Enterprises: Reconsidering the Conventional Wisdom», *Journal of Economic Issues*, 48(3), pp. 821–847.

Bruton G.D. – Peng M.W. – Ahlstrom D. – Stan C. – Xu, K. (2015), «State-Owned Enterprise Around the World as Hybrid Organizations», *The Academy of Management Perspectives*, 29(1), pp. 92–114.

Carney R.W. – Child T.B. (2012), «Changes to the Ownership and Control of East Asian Corporations between 1996 and 2008: The Primacy of Politics», *Journal of Financial Economics*, 107, pp. 494–513.

Christie R. (1984), *Electricity, Industry and Class in South Africa*, Albany, State University of New York Press.

Clarke N.L. (1994), *Manufacturing Apartheid. State Corporations in South Africa*, New Haven, Yale University Press.
Coetzee J.C. – du Toit F.J. (1981), in Beyers C.J. (ed.), *Suid-Afrikaanse Biografiese Woordeboek*, 4, Pretoria, Human Sciences Research Council.
Coetzee, J. C. (1981) 'Du Toit, Francois Jakobus ' in Beyers, C J (ed) Suid-Afrikaanse Biografiese Woordeboek, 4. Pretoria: Humann Sciences Research Council: 145–146.
Debates of Parliament, Hansard, Part 60, 21/02/47 – 5/06/47: Col. 6075–6088; 6215–6216.
Debates of Parliament, Hansard, Part 87, 24/2/55: Col. 1798–1879.
Debates of Parliament, Hansard, Part 90, 20/3/56: Col. 2951–2954; 4523–4538; 2/5/56, Col. 5085–5086.
Du Plessis P.G. (1987), «Concentration of Power in the South African Manufacturing Industry», *South African Journal of Economics*, 44(3), pp. 172–182.
Du Toit F.J. (1951), «Industriële en ekonomiese beplanning in Suid-Afrika», *Tydskrif vir Wetenskap en Kuns*, 11(2), pp. 122–136.
Fieldhouse D.K. (1986), *Black Africa 1945–1980: Decolonization and Arrested Development*, London, Allen & Unwin.
Hopkins A.G. (1987), «Big Business in African Studies», *Journal of African History*, 28(1), pp. 119–140.
Huang L.J. – Snell R.S. (2003), «Turnaround, Corruption and Mediocrity: Leadership and Governance in Three State Owned Enterprises in Mainland China», *Journal of Business Ethics,* 43(1–2), pp. 111–124.
Jones F.S. (2002), *The Decline of the South African Economy*, Cheltenham, Edward Elgar.
Jones F.S. – Müller A.L. (1992), *The South African Economy, 1910–1990*, London, Macmillan.
Kleu S.J. (1973), «Strukturele aspekte van nywerheidsontwikkeling in Suid-Afrika», *South African Journal of Economics*, 41(4), pp. 284–307.
Lambrechts N. (1998), *South African Liquid Fuels Industry*, Johannesburg, pp. 1–72.
Lumby A. (1982), «Industrial Development Prior to the Second World War», in Coleman F.L., *Economic History of South Africa*, Pretoria, HAUM, pp. 195–219.
Mazzucato M. (2014), *The Entrepreneurial State. Debunking Public vs Private Sector Myths*, London, Anthem Press.
Mazzucato M. «Building the Entrepreneurial State», http://www.newstatesman.com/blogs/thestaggers/2012/03/investment-state-policy.
Marais G. (1981), «Structural Changes in Manufacturing Industry, 1916–1975», *South African Journal of Economics*, 49(1), pp. 26–45.
Meiring J.H. (1986), *Beplanning, logistiek en bedryfsaspekte van die oliebedryf en die invloed daarvan op Suid-Afrika*, unpublished D.Com. Thesis, Rand Afrikaans University.
Nellis J. – Kikeri S. (1989), «Public Enterprise Reform: Privatization and the World Bank», *World Development*, 17(5), pp. 659–672.

Nove A. (1973), *Efficiency Criteria for Nationalized Industries: A Study of the Misappropriation of Micro-Economic Theory*, London, Allen and Unwin.
Rahmim I.I. (2003), *Gas to Liquid Technologies: Recent Advances, Economics, Prospects*, paper presented at 26th IAEE Annual International Conference, Prague, June.
Sanlam Archives (SA) 6/1/7: M S LouwArchival Collection.
Sasol (2000), *SASOL Fifty Years Innovation*, Johannesburg, SASOL.
Sasol Archives (SAS) Annual Report, 1951–1979. Sasolburg.
Sasol Archive (SAS): *Historical Documents: 8/18: Private Correspondenc*e, reports.
Sasol Archive (SAS) 30/11/1: M W Kellogg & Co: Letter PE Rousseau – Du Toit, 26/5/55.
Sasol Archive (SAS) Annual Report, SASOL 1951–1979.
Scannell J.P. (1965), *Die Afrikaans e Kernensiklopedie*, Cape Town, Nasionale Boekhandel Beperk.
Schumann C.G.W. (1938), *Structural Changes and Business Cycles in South Africa*, London, Staples Press.
South African Archives Central Repository (SAB): HEN 3514/01/530/4: Memorandum and Articles of Association.
South African Archives Central Repository (SAB): HEN 3327/514/2/5/1: Fourth Interim Report of the Fuel Advisory Board, 6/10/43.
South African Archives Central Repository (SAB): HEN 3512/539/1/7/500: Letter Du Toit – Minister of Economic Affairs, 7/11/50.
South African Archives Central Repository (SAB): HEN 3205/506/1/4/2: IDC Memorandum re SASOL, 2/3/51.
South African Archives Central Repository (SAB): HEN 3513/H4/7/1: Algemeen: Letter Rousseau – Minister of Economic Affairs, 10/12/69.
South African Archives Central Repository (SAB): HEN 3209/506/1/4/1: SASOL, Annual Report, 30/6/53.
South African Archives Central Repository (SAB): HEN 4698, SC8/20/1547: Letter Du Toit – Minister of Economic Affairs, 23/11/53.
South African Archives Central Repository (SAB): Handel en Nywerheid (HEN) 5312/539/2: Industrial Development Council (IDC) Annual Report, 1955.
South African Archives Central Repository (SAB): HEN 3512/539/2: Letter Secretary Trade and Industry – Dutch High Commissioner, Den Haag, 1/10/54.
South African Archives Central Repository (SAB): HEN 3512/539/2: Letter PE Rousseau – Minister Trade & Industry, 10/2/54.
South African Archives Central Repository (SAB): HEN 3512/539/2: Letter Secretary Trade and Industry – SA Trade Commissioner, 23/10/54.
South African Archives Central Repository (SAB): HEN 3512/539/2: SASOL, report on activities in 1954, 18/1/55.
South African Archives Central Repository (SAB): HEN 3209/506/1/4/1: IDC, Annual Report, 1955.
South African Archives Central Repository (SAB): HEN 3513/539/2: Report on SASOL production, 1956.

South African Archives Central Repository (SAB) Handel en Nywerheid (HEN) 3513/506/1/4/1: Report on SASOL Production, 1956.
South African Archives Central Repository (SAB): HEN 3512/539/2: Letter Senior Trade Commissioner – Secretary of Commerce and Industries 30/10/56.
South African Archives Central Repository (SAB): HEN 5312/539/2: Letter Rousseau – Secretary Trade and Industry, 15/11/56.
South African Archives Central Repository (SAB): HEN 3209/506/1/4/1: Written response to question, 14/3/56.
South African Archives Central Repository (SAB): HEN 3209/506/1/4/1: Letter Office of Prime Minister, 30/4/56.
South African Archives Central Repository (SAB): HEN 3210/506/1/4/1: Letter Rousseau – Secretary of Trade and Industry, 26/3/58.
South African Archives Central Repository (SAB): HEN 3209/506/2/1/4: Memorandum to Minister of Trade and Industry, 8/1/58.
South African Archives Central Repository (SAB): HEN 3209/506/1/4/1, vol. 4, Letter Rousseau – Minister of Economic Affairs, 26/2/59; Letter Rousseau – Minister of Economic Affairs, 7/4/59.
South African Archives Central Repository (SAB): HEN 3209/506/1/4/1, vol. 4, Appendix: IDC, Annual Report, 30/6/59.
South African Archives Central Repository (SAB): HEN 3209/506/1/4/1 vol. 4, SASOL, Annual Report, 1/12/59.
South African Archives Central Repository (SAB): HEN 3210/506/1/4/1/ vol. 4, IDC, Chairman's Report, 20/9/61.
South African Archives Central Repository (SAB): HEN3512/539/2: Letter Rousseau – Secretary of Trade and Industry,6/1/58.
South African Archives Central Repository (SAB): HEN 3513/539/3: Memorandum Rousseau – Minister Economic Affairs, 8/1/58.
South African Archives Central Repository (SAB): HEN 3513/539/3: Letter Secretary Finance – Rousseau,1/3/58.
South African Archives Central Repository (SAB): HEN 3513/538/3 : Letter Secretary Commerce and Industry – SASOL, 6/6/58.
South African Archives Central Repository (SAB): HEN 3513/539/3: SASOL, Annual Report, 1958.
South African Archives Central Repository (SAB): HEN 3513/539/3: Letter Secretary Finance – SASOL, 26/3/59.
South African Archives Central Repository (SAB): HEN 3512/539/3: Various Correspondence: SASOL – Trade Commissioners, 1958–1963.
South African Legal Information Institute (SAFLII): G 14637: Liquid Fuel and Oil Act Repeal Act, no. 20 of 1993, *www.saflii.org.za*.
Sparks S.J. (2012), *Apartheid Modern: South Africa's Oil from Coal Project and the History of a South African Company Town*, unpublished Ph.D. Dissertation, University of Michigan.

Thorne H.M. – Kraemer A.J. (1954), *Oil Shale Operations in the Union of South Africa*, *October 1947*, Bureau of Mines, Report of Investigation 5019, United States Department of the Interior, January.

Toninelli P.A. (2000), *The Rise and Fall of State-Owned Enterprise in the Western World*, New York, Cambridge University Press.

Verhoef G. (2003), «Innovation for Globalisation or Globalisation of Innovation? SASOL in the Chemical Industry During the 1990s», *South African Journal of Economic History*, 18(1–2), pp. 88–121.

Zingales L. (2012), *A Capitalism for the People: Recapturing the lost Genius of American Prosperity*, New York, Basic Books.

The Role of Military Managers in State-Owned Companies in Argentina. *Astilleros y Fábricas Navales del Estado* (1953–1986)

Cintia Russo

Abstract Our purpose is to analyze—focusing on the profiles of the top management—the State influence in the Argentine industrialization through the creation of State-owned enterprises (SOEs) in strategic sectors, as a key factor in economic policy since the Second World War until the 1980s. The main argument is that the professionalization of the senior officers in Argentine Armed Forces influenced the creation and the trajectory of SOEs in strategic sectors. We focus on a case study, the State-owned shipyard—*Astilleros y Fábricas Navales del Estado*—created by the decision of the Navy in the early 1950s.

Keywords State-owned enterprises • Industrialization • Military top managers • Industrial-nationalist ideology

JEL Classification L320 • N460

C. Russo (✉)
Department of Economics, Universidad Nacional de Quilmes, Buenos Aires, Argentina

Instituto de Geografia, Facultad de Filosofía y Letras, Universidad de Buenos Aires, Buenos Aires, Argentina

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_8

The purpose of this chapter is to analyze—focusing on the profiles of the top management—the State influence in the Argentine industrialization through the creation of State-owned enterprises (SOEs) in strategic sectors, as a key factor in economic policy since the Second World War until the 1980s. Our main argument is that the professionalization of the senior officers in Argentine Armed Forces influenced the creation and trajectory of SOEs in strategic sectors.

We focus on a case study, the State-owned shipyard—*Astilleros y Fábricas Navales del Estado* (AFNE)—created by the decision of the Navy in the early 1950s. In the Argentine shipbuilding history, AFNE has been, and still remains, the most important shipyard in terms of productive capacity and employment. In the context of this study, we have taken into account AFNE'S origins and trajectory until the 1980s, which mainly corresponds to the period of its greater expansion and direct influence of the Navy. We will highlight the decisive influence, in this phase, of two key figures: Rear Admiral Edmundo Manera and Sea Captain Enrique Carranza.

The case study raises a range of questions, to which we have sought to respond. What reasons originated Argentine SOEs related to defense and strategic sectors? What was the role played by the senior officers who founded them? What were the ideological motivations that guided them? What role the strategic SOEs played in the long run in terms of investment, technological capabilities and positive spillovers in the economy?

We may consider, basically, two "generic" situations that are at the origin of the SOEs as an instrument of State intervention: firstly, the unsatisfactory performance of the private sector of the economy, a concept that approaches the idea of market failure; and secondly, the national defense (Toninelli 2000, p. 304). During the interwar years and the second postwar period, in Latin America, and particularly in Argentina, the arguments supporting the creation of SOEs in basic and strategic sectors were associated, essentially, with economic development and defense. Indeed, these companies were born linked to military interest almost always related to local development of technological capabilities and national sovereignty (Adler 1987).

The management of these projects in the hands of the Army, Navy and Air Force had a common feature: the military techno-nationalist ideology (Adler 1987), hence, the importance of recovering the professional biographies of those who left their ideological mark on the history of these SOEs. In this regard, this analysis on the influence of military senior officers over strategic SOEs is not an entirely novel approach, but it certainly is, in the case of AFNE.

This chapter is divided into four parts. First, we review the Argentine entrepreneurial State trajectory through the creation of SOEs, from the 1920s till the 1980s, in order to situate the case study in a broader context. Second, we expose briefly the industrial-nationalist thought of senior officers of Argentine Armed Forces since 1920s until 1940s. Third, we analyze the origins of a State-owned shipyard, AFNE, and its trajectory until the 1980s, through the influence of two top managers: Rear Admiral Edmundo Manera and Sea Captain Enrique Carranza. The former was the naval engineer who conceived the Navy shipyard in the 1940s and early 1950s, and the latter was the architect of its expansion between the 1960s and 1980s. Finally, we highlight their contribution in building technological capabilities and training human resources for naval sector as a whole in the long run.

The main sources used in this chapter are AFNE's Annual Reports and Balance Sheets (1959 until 1988), AFNE's Standard Cost Manual (1959, 1969, 1972), interviews with key informants, national and local press, national and provincial laws and decrees, and the Argentine Navy's Historical Archives, mainly the Navy Officers' Service Records.

The Entrepreneurial State in Argentina

In the midst of the crisis of values unleashed after the First World War and the crack of 1929, liberal democracy was questioned by different political movements and ideologies. This "disappointment" dragged faith in the ability of the competitive market to cope with the Great Depression, emerging a growing consensus on the need to expand the role of the State in the economic sphere.

In Argentina, the restriction imposed by the international economic context since the 1930s forced industrial policies to replace imports, which became more explicit after the Second World War. In parallel, supply difficulties in strategic goods stimulated industrialist projects among the Armed Forces. Since the end of the Second World War until the 1980s, it may be useful to distinguish different phases in which the Argentine State increased its role not only as a regulator but also as a producer through the creation of SOEs.

From the 1920s to mid-1940s, regulation and creation of SOEs were promoted by conservative governments, who were compelled to apply interventionist measures to address the effects of the Great Depression and the Second World War. In this context, new State agencies were created endowed with some autonomy in order to provide services or productive activities. Throughout this phase, especially since the 1930s, the State has intensified

the regulation over some basic and strategic productive activities.[1] Two reasons justified this intervention: economic autonomy and national defense. Therefore, foreign organizations that controlled the supply of goods and services considered essential were partially or totally replaced (oil, electricity, transportation, railroads and steel).

In the trajectory of the entrepreneurial State in Argentina, the creation of *Yacimientos Petrolíferos Fiscales* (YPF, the national oil company) in 1922 was a significant milestone. The Colonel Enrique Mosconi was his mentor and founder, and directed the company for eight years; in this short period, he achieved to position the State Oil Company as one of the key players in the incipient industrialization. In 1927, one of the first factories for defense, the military aircraft factory (*Fábrica Militar de Aviones*), was created in Córdoba, the geographic center of the country. From 1935 until 1955, the Argentine military-industrial complex was consolidated with the creation of numerous factories in various productive sectors (heavy industry, metallurgy, heavy chemical, fertilizer, petrochemical and manufacturing, machinery and electrical appliances) (Rougier 2015). Among them, one of the most important companies in the military-industrial complex was the military armaments factory (*Dirección General de Fabricaciones Militares, DGFM*). This is a paradigm case of direct State involvement in production and marketing. Founded in 1941 on the initiative of General Manuel Savio, the *DGFM* had the specific aim of producing necessary goods for military supplies.

The State merchant fleet (*Flota Mercante del Estado*) was created in 1941 under the control of the Admiralty. At the beginning, the fleet included only foreign ships immobilized by war, in the Argentine ports; two years later, in 1943, it became the first and most important shipping company, followed by the private group Dodero and YPF fleet (González Climent 1973, p. 144).

During the military government established between 1943 and 1946, in which Colonel Perón played a decisive role, there was a breakthrough in promoting State intervention and industrialization. The *Banco de Crédito industrial* (the Industrial Credit Bank), founded in 1944, was the first State financial institution explicitly constituted as a tool to promote industrialization. The interests and influence of the military in the structure of the bank were evident through the permanent presence in the Directory Board of representatives of the Ministries of War and Navy.

[1] The strategic sectors are those which, by nature (effects of supply), strongly influence the economic, technological and industrial development of the country. They included energy industries (oil and gas), iron and steel, nuclear, chemical (heavy and petrochemical chemistry) and defense (shipbuilding, armaments industry, aeronautics and space industry) as well as those related to information and telecommunication technologies (Beyreuther 2011).

Since the advent to power of Perón, the vision of the political leadership regarding the SOEs began to change. From then on SOEs' management became more autonomous. During the Perónists administrations (1946–1955), the State intervention in the economy was deepened and redefined, and the defensive strategy evolved toward a planning strategy (Berrotarán 2003). In this period until the mid-1970s began a cycle of expansion of SOEs. As explained earlier, the creation of SOEs was not a singularity of the Perónists administrations; however, it is evident that in this context, characterized by industrialization led by the State, the SOEs played a key role in the import substitution scheme (Bértola and Ocampo 2010).

In short, during the Perónism, the State, significantly, increased its regulatory and productive functions through nationalization of private firms and creation of new SOEs. In this sense, the government improved economic and policy tools implemented before by liberal interventionists and, in some cases, they broadened its powers (Campione 2003, p. 98).

By the way of Decree no. 15349 of 1946, the State intervention in the economy was regulated, particularly the case of joint ventures between the public and private sectors (*Boletín Oficial* June 25, 1946). This decree was the antecedent of the Law no. 13653, promulgated in 1949, which established the legal framework for public companies, called since then "State Enterprises", decentralized of the national administration (*Boletín Oficial*, October 31, 1949). Although this regime granted more autonomy to companies' management, the government conserved a significant quota of decision.

In accordance to the economic objectives set out in the first Five-Year Plan (1947–1951), the industrialization effort was linked to the requirements of national defense. The Second Five-Year Plan (1952–1957) was explicit about the need to provide the Armed Forces the equipment to strengthen military power and consolidate "justice, freedom and sovereignty", the Perónists principles. "The financial effort demanded by the modernization of our Armed Forces to get in tune with the current world situation will not be a charge for the national economy; it is expected that our military factories will be managed with economic criteria. The extracting of raw materials is essentials for both the progress of our industry, as well as the national defence" (Second Five-Year Plan, January 30, 1953).

After the fall of Perón in 1955, a new phase began for the entrepreneurial State. The SOEs management had to face the rationalization criteria already established under President Arturo Frondizi (1958–1962). Since the mid-1960s to mid-1970s, new SOEs were created. From 1967 their number increased due to the Industrial Rehabilitation Act for companies in financial difficulties (187 firms were beneficiated and many, finally, nationalized, Ugalde 1983).

The moment of greatest expansion of the post-war military-industrial complex took place in the late 1970s, but it would soon be dismantled with loss of political power of the military and the rise of neoliberal politics. Despite the fact that during this period the principle of subsidiarity and privatization of SOEs was imposed there were notable exceptions, linked to strategic sectors. This was the case of the National Atomic Energy Commission (*Comisión Nacional de Energía Atómica*), from which were created new companies linked to nuclear energy.

From 1950 until 1975, the share of SOEs in the GDP was around 6 %, but if we consider the industrial GDP in this period, we may observe a decline from 20 to 16 % (see Appendix Table 1). Since the 1980s and, especially, the 1990s, in parallel with privatization, the retraction of SOEs in the economy was initiated. After the collapse of the Argentine economy in 2001, and particularly since 2003, the State returned to a more active role with the restatization of some companies privatized in the previous decades.[2]

The Industrial-Nationalist Ideology in Argentina: Enrique Mosconi and Manuel Savio

During the First World War, Argentine Armed Forces were concerned with security and national defense due to the difficulties in the supply of strategic material for the war industry. In the interwar years, there was a widespread debate about the domestic industrialization with the involvement of prominent members of the Armed Forces. The claims of industrial protectionism arose with the first signs of slowdown in agricultural exports already observed since mid-1920s, but further accentuated in the 1930s. Between 1928 and 1940 were implemented regulatory mechanisms such as special boards and commissions to regulate and protect productive sectors. During the Second World War, new public bodies emerged to address the situation while the existing institutions acquired a greater degree of autonomy. In this context, it seems justified to protect certain sectors and companies linked to military industries (transport, communication, energy and strategic goods).

The shadows of a new world stage which extended beyond the end of the war deepened the debate about industrialization. During those years, the creation of SOEs for national defense was intensified as key pieces of an indus-

[2] Between 2003 and 2015, the following companies and public services, among the most important, were restatized: mail service, radio spectrum, pension funds, railways, energy, water and sanitation, and *Argentina Satelital*, *Aerolínes Argentina*, *Enarsa and* YPF.

trialization model that would ensure greater economic independence and political autonomy.

The General Enrique Mosconi (1877–1940) and General Manuel Savio (1892–1948) were outstanding representatives of industrial-nationalist ideology in the Army. As the first director of YPF (1922–1930), Mosconi sought to develop oil resources under the State control, resisting the participation of foreign companies (Potash 1981).[3] Staunch opponent of the British and American oil trusts, Mosconi and his team of engineers, drew up plans for import substitution that received the support of the government. YPF opened its first distillery in December 1925 and the following year joined the fuel market with their own products, increasing two and half times its production capacity between 1922 and 1929 (Gadano 2006). After the military coup of September 6, 1930, which overthrew President Yrigoyen, Mosconi was detained for a short time and left, definitely, the direction of YPF.

General Manuel Savio,[4] with the support of the new government emerged from the military coup of 1930, founded the Military Technical College *(Escuela Superior Técnica*, *EST*). The EST was the first step in a long-term project. Its aim, as counterpart to the War College, was to train military engineers for a vast program of industrialization, including production of aircrafts. Savio was an active promoter of nationalist doctrines within the Army and coined the concept of "industrialist consciousness", anticipating, somehow, the concerns and economic conceptions of the political leaders of his time (Potash 1981).

Savio understood the effects of the 1929 crisis in the international division of labor and its consequences for the Argentina agro-exports. He was struggling for a greater economic autonomy, assuming an "industrial mobilization strategy" for times of war and peace (Savio 1942). The military sectors who supported this position were linked to the technical services of the Army and Navy and fostered the creation of war industries to reduce dependence on imported material. This debate, in terms of Savio, opened perhaps a false dichotomy, between "the Argentina of the grains or the Argentina of the metals" (Savio 1942, p. 10).

[3] Enrique Mosconi was a civil engineer trained as a military engineer in Prussia. He was the General Director of the military arsenals from 1914 until 1918, and in 1920, he was the Director of the War Arsenal of the Army, "*Esteban de Luca*". In 1922, he assumed the direction of YPF.

[4] Manuel Nicolas Savio graduated from the Military College as Second Lieutenant in 1910. Between 1917 and 1929 he taught technical subjects at the Military College, at the Army War College and at the School of Mechanics. In 1930, he reorganized the Superior Military College and on that basis organized the *EST*, the Army technical college with the aim of training military engineers.

There was another group of senior officers opposed to these conceptions, considering that the fate of the country was tied to its traditional role in the international market as supplier of agricultural raw materials. Although the group of military understood the plight of the war, they posed that the exploitation of commodities was not the responsibility of the Armed Forces. By contrast, those military sectors that fostered the industrialization strategy proposed the creation of SOEs to produce basic goods.

The imperative of defense prevailed over the economic reasons, and it seems to justify the State control over certain sectors and companies (arsenals, shipyards to build warships and armament factories). In this sense, the aim of Savio was to encourage the role of the Army in transforming Argentine economic and social structure through the exploration and exploitation of the basic resources and the development of heavy industries.

According to Savio, the "national-industrial mobilization" should combine defense and industry. In his vision, there could be no security or national defense separated from the basic industries. Challenging the Ricardian principle of comparative advantage, Savio affirmed that "the main error of our economy structure lies in the fact that we have postponed the production of metals privileging the cereals" (Savio 1942, p. 10). The industrial mobilization required an extensive knowledge of the national natural resources and a significant organizational effort of the national scientific institutions.

In this regard, the development of the industrial sector was an indispensable tool in peace and wartime. It was therefore essential, in turbulent times, defending national economic autonomy to avoid serious problems "… and ensure our control over defence and economy" (Savio 1942, p. 12).

The industrial mobilization was not only referring to basic industries but also referring to a wider role of the State as a regulator of the process. In a speech at the *Unión Industrial Argentina*, the industrial businessmen organization, in 1942, Savio established planning guidelines for the new industry, noting that the role of the State differed from that of the entrepreneur, because the State should act as a promoter, "I feel obliged to express, without euphemisms, that without the State protection, this plan or any other would not be viable" (Savio 1942, pp. 28–29).

In his book *Movilización Industrial (Industrial Mobilization,* 1942), he argued that basic industry as "mother of industries" needs a promoter State and, at the same time, a productive structure based on a market regulation system. In his vision, Savio conceived the creation of an autonomous and centralized agency that implied public and private participation. Savio assumed in 1936 the direction of the Military Factories. In 1938, he submitted to the government a draft law establishing the Dirección General de Fabricaciones

Militares (DGFM). In 1941, by Law no. 12709, the Army achieved to gain the control over large part of the military-industrial complex (heavy chemicals, steel and mechanical engineering). During Perón's government, Savio obtained significant support for creating joint ventures in production of metals and chemicals to manufacture armaments (Potash 1984). Within the Ministry of War, Savio organized the Production Department of heavy industry and raw materials and established the foundations of the iron and steel, petrochemical and nuclear sector.

Shipbuilding for Defense and Economic Independence

In the Navy, Savio's ideas were supported by senior officers of "industrialist consciousness"—Edmundo Manera and Enrique Carranza who were key players in the creation of the Navy shipyard. From their perspective, the State shipyard should be articulated with private capital to promote shipbuilding industry, which they considered an essential pillar of national naval power.

The embryo of the future Navy shipyard was the workshop of the Naval Base (*Talleres Generales*). Operating in the Río Santiago Naval Base, 60 km south of the city of Buenos Aires, since 1893, they were the logistic support for the vessels that patrolled the Río de la Plata.

In the tense interwar years, the Argentine Navy advocated to reduce dependence on ship imports. In this regard, in the 1930s, the Navy minister, Admiral Eleazar Videla, and the director of *Talleres Generales* of the Rio Santiago Naval Base, Commander Edmundo Manera, proposed the production of nine patrol vessels.

Edmundo Manera (1895–1985) became one of the most important figures of the national shipbuilding industry. He joined the Navy in 1913 as a student at the Naval Academy.[5] Four years later, he graduated as the best student of the academy and obtained a scholarship from the Admiralty to study at the *Scuola Superiore Navale di Genova*. In 1926, he graduated naval and mechanical engineering with honors and made his first practice at Fiat San Giorgio shipyard in La Spezia, where he specialized in planning and construction of submarines. With the rank of Lieutenant in 1927, he was the member of the Argentine Naval Commission in Europe. Back in his country, he joined the Corps of Naval Engineering. In 1933, he was appointed as the director of the *Talleres Generales Río Santiago* with the rank of Lieutenant Commander.

[5] Manera E., Navy Officers' Service Records (Box 247), Navy's Historic Archive.

He was promoted to Commander in 1935 and Captain in 1942, reached the highest rank as a Rear Admiral in 1947 and retired from the Navy in 1951.

During the Second World War, there were significant supply problems, and only a quarter of the gross tonnage available could be used for traffic from overseas, which generated a bottleneck on foreign trade (Coscia 1981). Edmundo Manera recognized that only when the exchange with the international market was seriously threatening the national economy, the Argentine government understood the importance of military shipbuilding and national merchant fleet (Manera 1963, p. 13).

In this line of thinking, Manera had developed a comprehensive concept of naval power which he defined as "the capacity of the nation to secure their maritime communications under all circumstances in order to ensure the national economic development" (Manera 1968, p. 235). He identified three factors that should support the national naval power: a national merchant marine for the transport of raw materials and products required by national economy and military operations, a military Navy to protect maritime trade and, finally, a naval industry. In this vision, the shipbuilding industry plays a key role to maintain the naval units and at the same time must be capable of building new units with a decreasing degree of imported materials to meet the demands of the economy in peace and wartimes. The convergence of these three elements demands greater State intervention. Manera argued that protectionist policies were necessary to ensure the survival of the fledgling shipbuilding industry in a developing country like Argentina (Manera 1968).

As the director of the *Talleres Generales Río Santiago*, in the 1930s, Manera was responsible for the inspection of the submarines imported from Italy and at the same time, for the production of the first military ships built in the country with the participation of the private shipyards. Within two years, five patrol boats were manufactured in the *Talleres Generales* of the Navy, and concurrently, Manera developed the construction plans for other four that were actually built in private shipyards. The patrol vessels projects required an organizational and technical challenge for the *Talleres Generales*. When the construction phase of naval units began, the Navy shipyard had a simple organizational structure: one direction and various workshops (manufacture of mechanical parts, steel casting, bronze and brass). The ships were repaired in a covered small dock and in two floating docks for destroyers and submarines. In the 1930s, the *Talleres Generales* had 400 workers from various specialties, but it became necessary to expand the workforce and professionals (González Climent 1973, p. 129).

Manera proposed an adjustment of the entire organizational scheme to allow better monitoring and control of each production stage. In this sense,

Manera decentralized functions and delegated to foremen greater technical and administrative responsibilities so that, virtually, they played the role of CEOs of their workshops. On the other hand, Manera centralized the executive tasks: the accounting department took over the control of personnel, the technical division was responsible for the construction plans and the budget department monitored the construction process.

The main obstacles for these changes were deficiencies in infrastructure, equipment and human resources. In this regard, Manera tried to improve shipyard technological capabilities both in productive process as well as in human resources training. An example of these improvements was the installation of testing laboratory of materials in a shed only taking advantage of "wit, skill and few equipment" (González Climent 1973, p. 131). Additionally, the old mapping system was replaced by geometric procedures (lines drawn on the floor of the mold loft). The new tracers should know the coppersmith's work and should have a greater theoretical preparation for assimilating the new method. Almost all assistants in various naval trades should continue training after working hours (Manera 1968). These courses were, somehow, a rehearsal of what would be the school of craftsmen of the Naval Base and later of the *Escuela Técnica del Astillero Río Santiago* (the technical school of the Rio Santiago shipyard).

The introduction of some modern methods such as tracing was combined with precarious productive conditions involving more manual labor. For Manera "the loyalty and commitment" of the shipyard workers was a determinant factor that could guarantee the continuity of production in precarious productive conditions (Manera 1968).[6]

The production of the patrol vessels was a real challenge for the time and involved not only organizational and technical requirements but also the joint efforts of private and public companies. Manera conceived, then, the project of a State shipyard to strengthen the national shipbuilding industry. In 1938, he created a Special Commission to elaborate the "Draft of the Shipyard Rio Santiago" with the explicit aim of achieving imports substitution in the sector (González Climent 1973, p. 140). As managing director and project supervisor of the works of the new shipyard, Manera modified its location and decided to install it on the opposite riverside of the Naval Base, to facilitate the launchings of large vessels.

The decision to consolidate a strategic productive sector that would give the nation more external autonomy coincides in many respects with the explicit

[6]To replace the lack of cranes and presses, many materials were carried, literally, by hand or on shoulder (González Climent 1973, p. 132).

objectives of the Perónist administrations. The First Five-Year Plan of Perón expressly included the promotion of shipbuilding as part of the process of national industrialization, but, furthermore, the Second Plan established, specifically, policies for the development of the shipbuilding industry. The Navy's shipyard was conceived, indeed, as an important part of the industrialization plan set in motion during Perón's second term to strengthen heavy industry. The shipyard was created both to meet the needs of the domestic Merchant Navy as well as those of the Navy (Second Plan Five-Year Plan, January 30, 1953, p. 29).

The Trajectory of AFNE

The Navy's shipyard, located in Ensenada, 60 km south of the city of Buenos Aires on the Rio de La Plata, was created in 1953 by an Executive Decree no. 10627. *Astilleros y Fábricas Navales del Estado* (AFNE) included *Astillero Rio Santiago* (ARS) and *Fábrica Navales de Explosivos Azul* (FANAZUL). AFNE depended on the Navy, and by the aforementioned Law no. 13653/1949, it had the juridic category of SOE.

AFNE was designed and built by Navy officers with funds from the National Treasury. Its mission was to lead, manage and coordinate industrial and commercial establishments of the Navy regarding research, design and construction of warships and merchant ships and, eventually, special repairs (Decree no. 10627/1953). AFNE's organizational chart was set at the Public Statute Company of 1959, which established that the direction and management of the company should be chaired by a senior officer or head of the Navy Board. Directors and president were appointed by the executive on the proposal of Marine minister (Decree no. 16385/1959).[7] In this sense, due to its military origin, the internal organization of the company was characterized by a bureaucratic and pyramidal structure (Frassa 2009). Therefore, the organization chart of the shipyard was conceived in the "image and likeness" of the hierarchical-military model that imposed, in turn, strict internal discipline of the workforce. The highest authority was the president and then the chain of command comprised six hierarchical levels: managers, coordinators, heads of department, division chiefs, section heads and supervisors.[8] The characteristics of productive activity of AFNE imposed a significant degree of decentralization in terms of production areas—"Shipbuilding"

[7] The president of the Directory Board had to be a senior officer of the Navy and also had to include at least two other members of high rank of the Navy (Decree no. 10627/1953, article 4th).

[8] The organizational chart was established by the decree no. 16385/1959.

and "Mechanical Constructions"—and the areas of design, control and management—"Industrial Relations", "Control and Testing" and "Accounting/Administrative" (AFNE's *Standard Cost Manual*, 1959).

In spite of the importance of the Navy in the direction of the shipyard, during the first decade of AFNE, the presence of officers in activity was reduced, and intermediate positions were gradually occupied by retired Navy officers. In this regard, one of the most important top managers of AFNE, the retired Sea Captain Enrique Carranza, pointed out in 1967 that "an industrial company needs managers and stable executives, conditions that cannot be performed efficiently by military personnel in activity due to the transfers they must fulfill during their professional careers, which clearly, interferes with the industrial nature of the shipyard" (Carranza 1967, p. 432).

Enrique Carranza (1910–2008) graduated at the top of his class of the Naval Academy and received the title of engineering in 1931 with the rank of Lieutenant Commander. His career in the Navy before joining AFNE in 1960 was closely linked to his professional work as a machinist engineer and as a teacher at the *Escuela de Mecánica de la Armada* (ESMA, the Navy school) and at the Naval Academy. He was the chief engineer in different units of the military fleet and director at the Arsenal Puerto Belgrano. In 1936, Carranza was promoted to Lieutenant Junior and, two years later, to First Lieutenant. He continued with successive promotions to Lieutenant Commander (1944–1948) and Commander (1948–1953), to achieve the maximum degree as Sea Captain in 1953. He, finally, retired from the Navy in 1956.

From 1938 until 1944, he was the director of the ESMA and joined the Corps of Engineers of the Navy as the chief engineer. Additionally, during this period, he was sent to England and the United States to supervise the Navy's purchases. For nearly ten years, between 1944 and 1953, he was the chief of Studies at the Naval Academy. Subsequently, he was part of the Argentine Naval Commission in the United States and in 1955 joined the staff of the Sea Fleet as head of maintenance. After going into retirement, in 1956, he served as the CEO of the Department of Production, Industry, Trade and Transport of the Ministry of Finance and Economy.

Carranza entered AFNE in 1960 and worked together with the naval engineer Admiral Antonio Marín (1912–1999), who had a prominent role in the early years of the Navy Yard.[9] Carranza was the vice president of

[9] Antonio Marín studied at the Massachusetts Institute of Technology with a scholarship of the Argentine Navy. He graduated as a naval and mechanical engineer in 1940. Back in Argentina, he participated with

AFNE between 1960 and 1963 and became the president in two different periods: from 1963 until 1976 and then, from 1984 until 1986, with the return of democracy during the presidency of Raúl Alfonsín (1984–1989). Carranza led the State shipyard as president for almost two decades, improving, significantly, its organizational structure, productive conditions, technological capabilities and, definitely, its competitiveness (Pietranera, July 25, 2012).

In 1960, when Carranza entered AFNE, the shipyard employed 4200 workers; four years later, they dropped by almost half (see Appendix Table 2). As the president, Carranza had concerns about the low productivity of AFNE, which in 1964 was operating at 10 % of its installed capacity and employed 2300 men, whereas at full capacity of production could occupy 5000 workers (Carranza 1967, p. 425). A decade after its foundation, Carranza recognized that the Navy Yard, created to gradually reduce the foreign dependence, had serious problems of efficiency, productivity and competitiveness.

Carranza, president of the shipyard, and Rear Admiral (R) Edmundo Manera, at that time, director of the Naval Engineering Department at the University of Buenos Aires, discussed these difficulties and the very nature of the State-owned shipyard. According to Manera, the existence of the State shipyard in its origin was justified by the need to develop local and autonomous shipbuilding industry in which private capital was not prepared to undertake the required investments (Manera 1968). But in the mid-1960s, the circumstances had changed; therefore, it could not be invoked the same reasons to justify the State intervention as in the 1940s. The subsidiary industries and the private shipyards were sufficiently developed; thus, it was needed a better coordination between public and private companies.

Manera and Carranza agreed on their diagnosis about AFNE's lack of competitiveness, namely, import taxes on inputs and equipment, financial constraints, delays in State payments, the lack of continuity in demand and AFNE's legal status as State-owned company. From this set of elements, the irregularity in payments was identified as a major cause of AFNE's financial instability.[10] This, in turn, provoked a vicious circle of delays in payments to private providers with increasing costs between 25 and 30 % (Manera 1968, p. 241). The consequence of all this was a combination of high costs, long

Edmundo Manera in creating the Naval Engineering career at University of Buenos Aires. Marín took part in the first team of engineers of AFNE and designed the flagship of the Argentina Navy.

[10] The most important debtors were the following public companies: *Empresa Líneas Marítimas Argentinas* (*ELMA*) *YPF* and *Yacimientos Carboníferos Fiscales*.

delivery periods and low productivity (AFNE, Annual Report and Balance Sheet 1965). Carranza considered that although the beginnings of the shipbuilding industry had been difficult, after more than two decades there had been significant investments to strengthen the "national seapower". There were enough naval engineers, technicians and skilled workers who had considerably improved the competitiveness of the sector. However, the lack of a "decided and effective State support" explained AFNE's poor performance (Carranza 1967).

The Annual Reports and Balance Sheets from 1966 until 1969 registered the deficient financial situation due to the discontinuity of State shipbuilding plans. Therefore, it was evident for the Directory Board the decisive role played by SOEs' demand in the economical and financial viability of the Navy shipyard and in the rest of the shipyards. For these reasons, Carranza struggled for consolidating consistent and coherent State construction plans, as the only way to coordinate the production between public and private companies, to ensure the competitiveness of the naval sector as a whole.

Carranza, supported by the Directory Board, attributed the origin of this imbalance and lack of efficiency to the bureaucratic administrative forms imposed by the Federal Government. He argued that since 1958, AFNE did not receive any funding from the National Treasury and, in this sense, was not a loss-making company. Nevertheless, the shipyard needed "more operative freedom, indispensable for commercial and industrial development and improving efficiency. If every administrative decision requires the approval of a State official, the functioning of the shipyard is seriously hindered" (Carranza 1967, p. 426). Therefore, Carranza advocated a change in the juridic status of AFNE as a way out of this "bureaucratic crossroad". Finally, Carranza achieved its goal in 1970 when AFNE became a stock company with majority stake held by the State. This legal regime allowed an easier access to financial markets, maintaining the State participation and control (Law no. 17318/1967). As a consequence, AFNE obtained greater autonomy in hiring suppliers and managing the budget with less bureaucratic constraints.

Under the direction of Carranza, AFNE expanded its installed capacity, dynamism which resulted not only in more investments (equipment and infrastructure) but also in preserving jobs and the training of technicians and skilled workers. During his tenure as president, the shipyard productivity was significantly improved: in this period were built more than half of the ships produced in AFNE's history (see Appendix Table 3).

Carranza promoted a strategy that combined diversification and import substitution in certain goods in which the private sector was not interested

(see Appendix Table 4). In order to carry out this purpose, between 1963 and 1976, he stimulated AFNE's association with foreign companies. From the 1960s, AFNE fabricated diesel engines under the license of the Swiss company Sulzer and the Italian Fiat. In 1971, Carranza obtained a new exclusive license with SAIC Fiat Concord to build diesel engines for different applications. In 1967, the first AFNE-SULZER engine was placed in the oil tanker "Florentino Ameghino" for YPF company. Diesel engines were produced under the brand AFNE-SULZER and AFNE-FIAT, and this was considered the most important technological achievement in the shipyard history (Benedetti 2015). Carranza attributed the failure of most of these agreements with foreign companies to delays in the decisions of State bureaucracy.

In short, diversification strategy reached its highest development in the 1970s when AFNE expanded its variety of production, namely, engines (diesel and electric), railroad equipment (tramway locomotives and bogies, rail crossings), molding and large pieces heavy metal industry, rolling cylinders, mill shirts for the sugar industry, tanks for liquefied gas, gates for dams, reduction gears, turbines for thermal power stations of great power and components for nuclear power plants (see Appendix Table 4).

On the eve of the coup d'etat of 1976, the State-owned shipyard was one of the most important factories in the south metropolitan region of Buenos Aires. Five thousand employees were part of the permanent staff and about 3000 were hired by subcontractors. The labor unrest in the shipyard came to a dramatic crescendo since mid-1975, and later that year, Carranza resigned as president of the company (AFNE, Annual Reports and Balance Sheets, 1975). Even though the Directory Board rejected his resignation, Carranza, finally, left the presidency in 1976. He would return with the government of Raúl Alfonsín, from 1984 until 1986, once again as president of AFNE. For almost a decade, from 1984 to 1993, the State-owned shipyard was transferred out to report administratively directly to the Ministry of Defence, specifically, the Department of Defence Production. This decision of the new government, drastically, reduced the influence of the Navy in the shipyard management (Mahler, March 19, 2015).

When Carranza returned to AFNE, the basic equipment was in whole or in part obsolete, the infrastructure underutilized and the demand highly insufficient. Under these conditions, his main challenge was to safeguard existing jobs. The company entered a declining stage (AFNE, Annual Reports and Balance Sheets, 1984–1986). Indeed, since the mid-1980s to 1993, AFNE's level of activity drastically dropped due to lack of domestic demand and strong competition of foreign goods in an open economy. Faced with the pos-

sibility of closure and privatization and for reasons beyond the scope of this chapter, in 1993, the shipyard was handed over to the government of Buenos Aires province (Russo 2013). Nowadays, the shipyard remains a State enterprise and employs nearly 50 % of the workforce of the Argentine naval sector. Its present is marked by an uncertain path of reintegration into the national and international markets.

Edmundo Manera and Enrique Carranza: Building Technological Capabilities in Argentine Shipbuilding Industry

Developing countries are not passive recipients of technology given that there is a great complexity in the generation, adaptation and use of technological knowledge (Katz 1984). In this sense, public and private companies in these countries make "technological efforts" to dominate and adapt technologies to domestic conditions, with own developments from both formal and informal learning processes (Lall 1992). This process involves the accumulation of endogenous technological capabilities based on explicit and especially tacit knowledge (Katz 1984; Nonaka et al. 2006). We understand by the concept of technological capabilities the complex array of skills, technological knowledge and organizational structures required to operate a technology efficiently and accomplish any process of technological change (Lall 1992).

The contribution of Manera and Carranza to set up a strategic industry in a developing country should be contextualized in a broader debate on economics of technological change and the effective construction of technological capabilities. We have to take account the nature of the goods manufactured by the shipbuilding industry (artifacts usually not produced in series) so that the development of endogenous technological capabilities is a determinant factor in its long-term trajectory. In this sense, to achieve the goal of Manera and Carranza, that is to say, the consolidation of the national naval power and the shipbuilding industry, it was necessary to train human resources by formal and informal pathways and to build technological capabilities.

This was the main challenge to strengthen the shipbuilding industry in the long run. In this regard, for Carranza and Manera, AFNE had a key role. They had conceived the State company not just as the main military and commercial shipyard in the country but also as an organization with the unavoidable mission of training human resources to ensure autonomous development for the naval sector as a whole.

The professionalization of the Argentine Navy began in the Naval Military School—founded in 1872—and during the first half of the twentieth century, the officers specialized in naval engineering studied abroad.[11] They were part of the technical elite committed to national autonomous development. The initiative of university education in naval engineering was due largely to the naval engineer Rear Admiral Manera. Representing the Navy, he organized, in 1950, the Bachelor's Degree in Naval Engineering at the Faculty of Engineering at the University of Buenos Aires.[12] After his retirement from the Navy in 1951, he continued his work in the shipbuilding industry as teacher, researcher and director of Naval Engineering Department at the Faculty of Engineering till the early 1960s.[13]

The labor force for the shipbuilding industry was formed in two pathways: in technical high schools or factory schools and also in shipyards workshops—the traditional and ongoing training through "master–apprentice" relationship. The secondary factory school, *Escuela Tecnica Astillero Rio Santiago*, was established in 1953, together with the foundation of the shipyard, in order to prepare technicians for the shipbuilding industry. Much of the AFNE's specialized workers come out, even today, from the school.

AFNE's human resources have historically been one of the keys of its performance. Due to the time and specialization that require the training of professionals, technicians and skilled workers in the shipbuilding industry, they are not easily replaceable. In the recessionary cycle, there is an exodus of skilled naval workers toward other productive sectors, and then, in the recovery phase, the challenge is to recruit again these ex-shipyard workers. Due to these characteristics, Manera and Carranza were keenly aware of the importance of preserving AFNE's human resources. They insisted that to ensure the future of the shipbuilding industry, it was necessary to retain the skilled workers during recessionary periods, which required short-term sacrifices that would be compensated in the long run. Moreover, the reduc-

[11] In the first half of the twentieth century, naval engineers studied in foreign universities. In 1943, the Navy Corps of Engineers was composed of only 18 professionals who were graduated mostly in the United States, Italy and Britain (Gonzalez Climent 1973, p. 144).

[12] The Bachelor's Degree in Naval Engineering had a duration of six years as other engineering at the University of Buenos Aires.

[13] Since then Manera joined the National Committee of the Bermejo River. Subsequently, he was the president of the Professional Council of Naval Engineering, chairman of the Naval Technical Division in the Argentine Centre of Engineers and member of the Institute of Argentine Merchant Marine (Manera E., Navy Officers' Service Records, Box 247, Navy's Historic Archive). He designed, in 1961, the first naval experimental center that now bears his name. This tunnel of 70 meters long is currently the only laboratory in the country and the third in the region.

tion of production introduced another negative factor, the fear of workers of losing their jobs with an adverse impact on productivity (Manera 1968; Carranza 1967). This "psychological factor" may influence negatively the productivity of a shipyard even more than in other industries where mechanical means of production prevail over the ability of workers and work organization responds to mass production process (Manera 1968; Carranza 1967).[14]

Recessionary periods fueled criticism within the Navy against AFNE. For a group of senior officers, the shipyard had accumulated, in the late 1960s, all the ills of SOEs, and it was considered as an inoperative company and a heavy burden on the Navy's budget. Carranza responded to these arguments highlighting that AFNE was at the same level as many foreign shipyards due to its facilities, equipment and human resources (engineers, technicians and workers) (Carranza 1967, p. 429). Despite acknowledging its financial difficulties, in the late 1960s, Carranza pointed out that AFNE had developed original technological capabilities with multiplier effects on the naval sector—including private companies—and on the industrial sector, as a whole, encouraging imports substitution strategy. Carranza claimed that the shipyard was "a national reality" that could not be ignored and constituted the strongest pillar of the national naval power (Carranza 1967).

Summing Up

What were the justifications that originated in Argentine SOEs in strategic sectors? What was the role played by senior officers of the Armed Forces who founded and consolidated these companies? What were the ideological motivations that guided them? What was the role played by strategic SOEs in the long run in terms of investment, technological capabilities and positive spillovers in the economy?

Latin American military and technical bureaucracies promoted the State intervention in the economy, mainly in strategic sectors (energy, transport and communications). In Argentina, the senior officers of the Army and the Navy with technical training, mainly engineers, played a key role in the consolidation of the entrepreneurial State. Strongly influenced by industrial-

[14] The shipbuilding industry differs from the mass production due to the characteristics of its products, based on projects, with a high unit cost, that is to say, manufactured by unity or in a very limited quantity, "custom-made" (Hobday 1998, 2000; Davies and Hobday 2005).

ist thought, with a nationalist bias, a group of senior officers of the Armed Forces stimulated and justified strategic productive sectors through the creation of SOEs. In the case analyzed here, the engineers of the Navy conceived the State-owned shipyard and defined its strategy over three decades (1953–1983). AFNE, devised during the 1940s, was opened almost at the end of the second Perónist administration, in 1953. The first three decades were those of the greater expansion when the shipyard depended on SOEs' demand and cycles of boom had alternated with more recessive ones. We focus our analysis in this period highlighting two biographical profiles, key figures in AFNE's history: Rear Admiral Edmund Manera and Sea Captain Enrique Carranza.

Edmundo Manera, mentor of the State-owned shipyard, argued that in a developing country like Argentina, the State was supposed to promote strategic sectors such as shipbuilding to strengthen the national naval power. From his perspective, the State-owned shipyard should develop technological capabilities to enable positive spillover on the private sector.

Sea Captain Enrique Carranza participated in the direction of AFNE for nearly two decades, from 1960 to 1976 and then from 1984 to 1986. Throughout the history of the State-owned shipyard, he was the president who lasted longer and led its period of greatest transformation and dynamism. His aim was to ensure an efficient and competitive shipyard operating under an industrial and commercial logic. To achieve this goal, he had to adapt the organizational structure to these criteria. Therefore, he boosted AFNE's conversion into a stock company with majority stake held by the State. This juridic status, acquired in 1970, allowed greater autonomy from "the bureaucratic State administrative constraints". AFNE's expansion in the 1970s, based on both the development of technological capabilities as well as the product diversification strategy, had his imprint.

Manera and Carranza recognized that a developing country like Argentina should encourage technological capabilities, that is to say, basic knowledge and skills needed to acquire, use, adapt, improve and create technology. For the naval sector and the State-owned shipyard, in particular, this was crucial. In this sense, AFNE represented a hotbed of skilled workers and technicians who generated positive spillover in Argentina shipbuilding industry, as noted in these pages.

Carranza left the AFNE because of the changing social and political conditions that led to the coup of 1976 and returned with the democratic government in 1984. The national and international context was obviously different from that of the 1970s, AFNE and the entire Argentine shipbuilding industry

had lost much of its dynamism. From the 1980s, AFNE faced the possibility of closure and privatization. Subsequently, in 1993, the shipyard became dependent on the administration of Buenos Aires province and thereafter began an erratic path.

Appendix

Table 1 Argentina, SOEs/GDP (1950–1975) (%)

Period	SOEs/total GDP	SOEs/industrial GDP
1950–1954	5.7	20.7
1955–1959	5.5	17.9
1960–1964	6.0	19.2
1965–1969	6.0	17.6
1970–1975	6.2	16.5

Source: Based on the data in *Boletín Estadístico del Banco Central de la Republica* Argentina 1982

Table 2 AFNE, employment

Year	Employees
1960	4200
1964	2600
1969	2850
1973	3495
1976	5000
1983	3500
1985	3500
1986	2500
1987	2400
1988	2400

Source: Based on the data in balance sheets, AFNE 1959–1988

Table 3 Major naval productions, AFNE 1953–2012

Years	Naval units launched
1953–1983	46 ships (up to 10,000 TPB (Tonelada de porte bruto), tankers, bulk carriers, cargo ships and military vessels)
1984–1993	5 ships (Navy and ELMA)
1994–2012	9 large vessels (up to 47,000 TPB container, bulk carrier and tugs)

Source: Based on the data in balance sheets, *Astilleros y Fábricas Navales del Estado* SA, 1959–2012

Table 4 AFNE, productive diversification (%/total turnover)

Items	1974	1975	1976	1980	1984	1985	1986	1987	1988
Shipbuilding	49	61.1	48.8	62.2	31.9	23.39	67.01	34.3	26.4
Pontoons	8	1.8	2	2.3					
Special works	1	0.1	0.5	0.7					
Engine	4	3.2	18.5	4.4	4.5	5.74	3.16	1.4	
Engine parts	0.2	0.5	0.5						
Nuclear components				0.1	0.2	0.16	0.06	0.1	
Turbines	0.1		0.5	1.8	0.01				
Bogie		2.6	4	4	0.1	0.25	0.31	0.3	0.7
Shunter				6.7					
Sale of other products	9	11.7	10.8	4.3	5.5	7.57	5.99	1	
Goods for resale	4	2.6	2	0.3	0.49	0.13	0.2		
Several works	1.4	1.6	0.2	0.4	0.8	0.81	3.99	2	2.4
Third-party services	0.7	2.1	4	0.4	0.3	0.11	0.03		
Sale of electric energy materials	0.3	0.3	0.5	0.3	0.3	0.28	0.18	0.1	
Financial income	0.7	1.4	2.1	9.9	55.7	61.45	17.95	57.6	65
Extraordinary income	4								
Other operations	4	0.3	0.5	0.5		0.11			
Purchase for others	4.6	4.7							
Agreements AFNE with *Fabricaciones Militares*	9	6	5	1.7	0.2		1.12	3.2	5.5

Source: Based on the data in balance sheets, *Astilleros y Fábricas Navales del Estado* SA, 1974–1988

Bibliography

Adler E. (1987), *The Power of Ideology. The Quest for Technological Autonomy in Argentina and Brazil,* Berkeley, University of California Press.

Armada Argentina (1992), *Promociones egresadas de la Escuela Naval Militar 1879–1991*, Buenos Aires, Estado Mayor General de la Armada, Dirección General del personal naval.

Armada Argentina (2007), «Meanual de intereses marítimos», Secretaría General Naval, Subsecretaría de Intereses Marítimos, retrieved from http://www.ara.mil.ar/pag.asp?idItem=189

Barragán I. (2013), *Para el bien de la Nación. Gestión militar de empresas estatales, prácticas de integración y represión de la fuerza de trabajo desde la perspectiva de caso, El astillero Río Santiago 1973–1976*, X Jornadas de Sociología, Facultad de Ciencias Sociales, Universidad de Buenos Aires.

Belini C. (2006), «Reestructurando el Estado industrial: el caso de la privatización de la DINIE 1955–1962», *Revista Desarrollo Económico*, 46(181), Buenos Aires, Instituto de Desarrollo Económicoy Social, pp. 89–116.

Belini C. – Rougier M. (2008), *El Estado empresario en la industria argentina*, Buenos Aires, Manantial.

Benedetti G. (2015), *Trayectoria de una empresa del Estado. Análisis de las capacidades tecnológicas del Astillero Río Santiago: 1953–2012*, unpublished master's thesis, Bernal, Universidad Nacional de Quilmes.

Berrotarán P. (2003), *Del plan a la planificación. El Estado durante la época peronista*, Buenos Aires, Imago Mundi.

Bértola L. – Ocampo J.A. (2010), *Desarrollo, vaivenes y desigualdad: una historia económica de América Latina desde la independencia*, Madrid, SEGIB.

Beyreuther I. (2011), *Desarrollo científico tecnológico e industrias para la defensa*, mimeo, IX Jornadas de Sociología, Capitalismo del Siglo XXI, crisis y reconfiguraciones, Universidad Nacional de Buenos Aires.

Boletín Centro Naval (Bcn) (1985), *Necrológica*, Buenos Aires.

Boletín Centro Naval (Bcn) (2008), *Necrológica*, Buenos Aires.

Boletín Estadístico del Banco Central de la Republica Argentina (1982), Buenos Aires.

Calá C. – Mauro L. – Graña F. – Borello J. (2008), «La industria naval argentina: antecedentes, dinámica reciente y situación actual», Mar del Pleata, FCEyS, retrieved from http://nulan.mdp.edu.ar/1099/1/00562.pdf

Campione D. (2003), *Prolegomenos del peronismo. Los cambios en el Estado nacional 1943–1946*, Buenos Aires, Manuel Suárez Editor.

Carranza E. (1967), «Aspectos de la industria naval argentina», *Boletín del Centro Naval*, 670, enero marzo, Buenos Aires, pp. 419–445.

Centro de Estudios Para la Producción (Cep) (2005a), *La industria naval en la Argentina*, Documento de trabajo, Buenos Aires, Subsecretaría de desarrollo productivo de la Secretaría de Industria de la Nación, retrieved from http//:www.industria.gov.ar/cep

Centro de Estudios Para la Producción (Cep) (2005b), «La industria naval pesada en la Argentina», retrieved in http://www.cep.gov.ar/html/industrial.htm

Cicalesi J.C. (2011), «Capacidades productivas de los Astilleros argentinos. Tradición y modernidad», *Tecnología Mielitar*, Buenos Aires, TECMIL, 4, pp. 7–13.

Comín F. – Aceña P. (eds) (1991), Historia de la empresa pública en España, Madrid, Espasa Calpe.

Corzo R. (2010), *Un sentimiento llamado Astillero*, Crónicas del Astillero Río Santiago, Ensenada, Editorial Dunken.

Coscia S. (1981), *La industria naval pesada. Desarrollo y perspectivas del mercado argentino*, Gerencia de Investigaciones Económicas, Deepartamento de Estudios Sectoriales, Buenos Aires, Banco Nacional de Desarrollo (BND).

Cuervo A. (1983), *Bases para el diseño de un modelo organizativo de las empresas públicas: holdings empresariales o entidades públicas de dirección*, Madrid, Hacienda Pública Española, pp. 195–212.

Davies A. – Hobday M. (2005), *The Business of Projects: Managing Innovation in Complex Products and Systems*, Cambridge University Press.

Evans P. (1996), «El Estado como problema y solución», *Revista Desarrollo Económico*, 140(3), Buenos Aires, Instituto de Desarrollo Económico y Social, pp. 529–562.

Felisini D. (2014), «Between State and Market. Managerial Capitalism Italian Style: IRI, 1933–1970», *Revista de Historia industrial, Economía y Empresa*, 54, pp. 81–107, retrieved from http://www.publicacions.ub.edu/refs/indices/07988.pdf

Frassa J. (2009), *Evitando el naufragio de la privatización. Estrategias laborales y empresariales en la industria naval frente a la transformación del contexto socio-económico. El caso del Astillero Río Santiago en los años 90*, unpublished Doctoral Thesis, Buenos Aires, Facultad de Ciencias Sociales, Universidad de Buenos Aires.

Friedman W. (1974), *Public and Pirvate Enterprises in Mixed Economies*, New York, Columbia University Press.

Fundación de Investigaciones Económicas Latinoamericanas (Fiel) (1976), *Las empresas públicas en la economía argentina*, Buenos Aires, Consejo Empresario Argentino.

Fundación de Investigación Para el Desarrollo (1981), *Estudios especiales: la industria naval en la Argentina*, Buenos Aires, FIDE.

Gadano N. (2006), *Historia del petróleo en Argentina 1907–1955*, Buenos Aires, Ed. Edhasa.

Gerschenkron A. (1968), *El atraso económico en perspectiva histórica*, Madrid, Alianza Editorial.

González Climent A. (1973), *Historia de la industria naval argentina*, Ensenada, Imprenta AFNE.

Hobday M. (1998), «Product Complexity, Innovation and Industrial Organization», *Research Policy*, pp. 689–710.

Hobday M. (2000), «The Project-Based Organization: An Ideal Form for Managing Complex Products and Systems?», *Research Policy*, pp. 871–893.

Katz J. (1984), «Domestic Technological Innovations and Dynamic Comparative Advantage. Further Reflections on a Comparative Case-Study Program», *Journal of Development Economics,* 16, North-Holland, pp. 13–38.

Lall S. (1992), «Technological Capabilities and Industrialization», *World Development*, 20(2), Great Britain, pp. 165–186.

López E. (1988), «La industria militar argentina», *Nueva Sociedad*, 97, septiembre-octubre, Caracas, pp. 168–177.

Manera E. (1963), *La importancia de los canales del rio Bermejo en el sistema nacional de transporte*, Buenos Aires, Biblioteca Cumbre.

Manera E. (1968), «Aspectos económicos de la industria naval», in Morell F. (comp.), *Intereses marítimos argentinos*, Buenos Aires, Centro Naval, Instituto de Publicaciones Navales, pp. 232–266.

Mauro L.M. (2011), *La industria naval como un sector estratégico: análisis del rol del Estado*, mimeo, Instituto de Investigaciones Gino Germani, Universidad de Buenos Aires.

Millward R. – Parker D.M. (1983), «Public and Private Enterprise: Comparative Behaviour and Relative Efficiency», in Millward R. – Parker D.M. – Rosenthal

L. – Summer M.T. – Topman N. (eds) (1983), *Public Sector Economies,* London, Longman, pp. 199–274.

Nonaka I. – Von Krogh G. – Voelpel S. (2006), «Organizational Knowledge Creation Theory: Evolutionary Paths and Future Advances», *Review Paper*, Doi, 10.1177/0170840606066312, Organization Studies, August, 27(8), pp. 1179–1208.

Noticias y Comentarios (1979), *Revista Astilleros y Fábricas Navales del Estado S.A.*, 1, Ensenada, AFNE.

Panaia M. – Lesser R. – Skupch P. (1973), *Estudios sobre los orígenes del peronismo*, Buenos Aires, Siglo XXI.

Pontoriero G. (2013), «Fuerzas Armadas y desarrollo energético en la Argentina: el papel de la Marina de Guerra en la primera mitad del siglo XX», *H-industri@ Revista de Historia de la Industria, los Servicios y las Empresas en América Latina*, 10, Universidad de Buenos Aires, pp. 1–33.

Reinert E. (2000), «The Role of the State in Economic Growth», in Toninelli P.A. (ed.), *The Rise and Fall of State-Owned Enterprise in the Western World*, Cambridge University Press, pp. 73–99.

Rodríguez J.O. (1981), *Industria Naval Pesada*, Documento realizado para Banco Nacional de Desarrollo, Buenos Aires, Gerencia de Investigaciones Económicas.

Ocaña C. – Salas V. (1983), «La teoría de la agencia: aplicación a las empresas públicas españolas», *Cuadernos Económicos*, 22–23, Madrid, ICE, pp. 157–182.

Rougier M. (2015), «El complejo militar industrial, "núcleo duro" del Estado empresario y la industrialización en la Argentina», in Regalsky A. – Rougier M. (eds), *Los derroteros del Estado empresario en la argentina siglo XX*, Buenos Aires, Editorial de la Universidad Nacional de Tres de Febrero.

Rouquié A. (1981), *Poder militar y sociedad política en la Argentina*, Buenos Aires, Hyspamérica.

Russo C. (2013), «Astilleros estatales e industria naval argentina: trayectoria reciente y desafíos futuros», *Revista de Gestión Pública*, vol. II, Santiago de Chile, Centro de estudios de la Gestión Pública, pp. 215–246.

Sandoval D. – Jaramillo L. (1986), «Caso n. 7. Un astillero colombiano», in Katz J. (comp.), *Desarrollo y crisis de la capacidad tecnológica latinoamericana. El caso de la industria metalmecánica. Estudios Sobre Desarrollo Económico*, Buenos Aires, BID/ CEPAL/CIID/PNUD, pp. 207–239.

Savio M. (1942), «Política de la producción metalúrgica argentina», *Revista Militar del Circulo Militar*, Buenos Aires, Instituto de Estudios y Conferencias Industriales, pp. 363–369.

Savio M. (1972a), *Movilización Industrial. En Obras del General Manuel Savio*, Buenos Aires, Imprenta SOMISA, (originally published in 1942).

Savio M. (1972b), «Discurso Cuarto aniversario de la creación de la Dirección General de Fabricaciones Militares», *En Obras del General Manuel Savio*, Buenos Aires, Imprenta SOMISA, (originally published in 1945).

Toninelli P.A. (ed.) (2000), *The Rise and Fall of State-Owned Enterprise in the Western World*, Cambridge University Press.
Ugalde A. (1983), «Las empresas públicas en Argentina: Su Magnitud y Origen», *Documento de Trabajo*, 3, Buenos Aires, Comisión Económica para América Latina, CEPAL.
Vernon R. – Aharoni Y. (1981), *State-Owned Enterprise in the Western Economics*, London, Groom Helm.

Sources

Afne's *Anual Reports and Balances sheets* (1959–1988). Afne's *Standard Cost Manual* (1959, 1969, 1972).
Argentine Navy's, *Historical Archives-Navy Officers' Service Records.*

Laws and Decrees

Decree Law no. 10627/1953, creating naval shipyard and State factories, *Boletín Oficial* (Official Gazette), no. 17423, June 23, 1953.
Decree Law no. 15349/1946, legal system legal for joint ventures, *Boletín Oficial* (Official Bulletin) 25 June 6, 1946.
Decree Law no. 16385, *Boletin Oficial* (Official Gazette), August 29, 1960.
Law no. 13653/1949, State companies, *Boletín Oficial* (Official Gazette), October 31, 1949. Law no. 14184, Second Five-Year Plan, *Boletín Oficial* (Official Gazette), January 30, 1953, retrieved from http://www.boletinoficial.gov.ar/DisplayPdf.aspx?s=01&f=19530130
Law no. 17318/1967, Corporations with State majority ownership, *Boletín Oficial* (Official Bulletin) Jun 27, 1967.

Interviews

Benedetti G., AFNE's counter (1972–2012), interviewed on April 26, 2008.
Casarico J., Teacher at the Escuela Técnica Astilleros Rio Santiago (ETARS) interviewed on July 15, 2008.
Mahler I., Industrialist, President of the Unión Industrial Argentina (1991–1993), interviewed on April 25, May 27, June 25, 2010, March 19, 2015.
Mospán N., Naval engineer, interviewed on March 5, 2012.
Pietranera J., Naval engineer, AFNE's former President (1986–1988), interviewed on July 25, 2012.

Podetti R., Naval engineer, Directory Board member of the Federación de la Industria Naval Argentina (FINA), interviewed on November 24, 2011.
Poire A., AFNE's technical naval electrician (1973–1978), interviewed January 10, 2015.
Potash, R. El ejercito y la política en la Argentina 1928–1945. Buenos Aires. Sudamericana. 1984.
Rosenfeld C., Naval technician, naval supplier, interviewed on July 25, 2010.
Yacobits D., Employee management Department, Astilleros Rio Santiago, interviewed on July 15, 2008.

Industrial Policy and the Role of MITI in Japan

Interview with Shinji Fukukawa: *led by* Franco Amatori *and* Corrado Molteni

Shinji Fukukawa, Franco Amatori, and Corrado Molteni

Abstract In the interview granted to Amatori and Molteni, Shinji Fukukawa, for a long time Vice-Minister of the powerful Japanese Ministry of International Trade and Industry (MITI), retraces the role of the Ministry in guiding Japanese industrial economy. In the 1950s and 1960s, MITI effectively ran much of Japanese industrial policies, with the major objective of strengthening the country's industrial basis, not differently from what other governments were doing through the instrument of State-owned enterprises (SOEs). The Ministry acted both as an arbiter and a regulator, providing private industries with guidelines on technological investments and on crucial competition challenges. Fukukawa underlines the vision inspiring MITI and also illustrates the working of MITI from inside, focusing on the relationships between its officials and private managers.

Keywords Japanese industrial policies • Developmental state

S. Fukukawa (✉)
Toyo University, Tokyo, Japan

F. Amatori
Department of Policy Analysis and Public Management, Bocconi University, Milan, Italy

C. Molteni
Academic and Cultural Attaché, Italian Embassy in Japan; University of Milan

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_9

During the session dedicated to "Reassessing the Role of Management in the Golden Age: An International Comparison of Public Sector Managers, 1945–1975", *paper presenters and scholars had the great opportunity to listen to the testimonial of Mr. Shinji Fukukawa, former vice minister of the Ministry of International Trade and Industry (MITI, now METI, Ministry of Economy, Trade and Industry). He is now chairman of Toyo University and senior advisor of Global Industrial and Social Progress Research Institute, a public interest corporation established in 1988 with a mission of research and studies based on the awareness of the role of Japan in the international community.*

*Founded in May 1949, when the Japanese economy was recovering from the economic disaster of the war, MITI has been one of the most powerful agencies of the government. In the 1950s and 1960s, it effectively ran much of the Japanese industrial policies, with the major objective of strengthening the country's industrial basis, not differently from what other governments were doing through the instrument of State-owned enterprises. The ministry acted both as an arbiter and a regulator, providing industries with managerial supervision and other guidelines, both formal and informal, on technological innovations (*i.e. *technological intelligence, help in licensing foreign technology), investments in new plants and equipments, and domestic and foreign competition (*i.e. *assistance in mergers, protection from foreign competition and access to foreign exchange).*

1. *Corrado Molteni*

Mr. Shinji Fukukawa, in your career—ended as vice minister of METI—you were one of the key persons inside the key institution directing Japanese economic development. On the basis of your broad experience, covering different seasons, how could you explain the major stages of Japanese economic development from the 1960s to the 1990s?

Shinji Fukukawa I joined MITI in 1955 when the post-war economic reconstruction process was ending. Major economic indicators in 1955 stood at $23.9 billion for GDP, $262 per capita GDP, $2 billion for export and $700 million for foreign reserve. Since then, I personally worked for the industrial policy planning, industrial restructuring measures, trade promotion policies and technological stimulus measures, until my resignation from the vice minister post in 1988. During my career at MITI, the Japanese economy showed remarkable progress. For example, GDP increased by 120 times, per capita GDP by 90 times, exports by 130 times and foreign reserves by 150 times.

In order to give a clear description of the historical development of the Japanese industrial economy, I would divide the post-war economic process into four stages: first, the post-war economic reconstruction stage until 1955; second, the high economic growth stage with trade and capital liberalization until 1973, when the first oil crisis took place; third, the knowledge intensification and internationalization stage until 1990, when the cold war ended; fourth, the globalization and Information and Communication Technology (ICT) revolution stage, which created the "new economy".

MITI intervened in the post-war reconstruction process by allocating scarce foreign currency, fiscal and financial availability, and then guided the industrial structure toward the high value-added sector such as heavy and chemical industry as well as machinery and electronic industry. At the time, foreign scholars and industrialists called such a system "Japan Inc." and criticized Japan by saying "notorious MITI".

In the second stage, precisely in the 1960s, the country experienced a high economic growth and a deep modernization. At that time, businesses were booming and investment grew at a very high speed. The Japanese private banks supported those investments: six major financial groups pushed forward the major industrial firms to acquire new ones in order to reach bigger dimensions of business. Iron, steel and chemical industries expanded their investments so much that we were quite afraid of overproduction. In order to avoid this, MITI collected some plans and programs from the major private industries and tried to verify if their investment programs were appropriate or not, according to their future plans. In cases when overproduction was considered possible, we asked the private sector to cut off their investments for two or three years and so we tried to adjust whether demand and supply would be appropriate or not. Of course, we relied on a market framework and on market functions, inviting private firms to hold off their investments, suggesting they consider whether their investment plan would be appropriate or not. After those negotiations some enterprises would really cut off their investments for two or three years so that the demand and supply situation would become appropriate; of course, other firms subverted those results, provoking some trade frictions.

2. *Franco Amatori*

Can you briefly talk about MITI's philosophy?

Shinji Fukukawa I should stress that MITI (and now METI) has maintained the strong belief that the "market function" is the most efficient tool to allocate resources in the appropriate manner. My view is that the best performance has

been achieved by a vigorous business activity stimulated by the market function, a high quality of the labor force, in parallel with effective policy making.

Industrial policy has played an important role for achieving higher economic growth in Japan. Other countries also executed similar policy measures, although they may not call it industrial policy. Macro-economic policy measures through fiscal and financial policy are not sufficient for achieving full employment and social stability, since the market function is not always perfect. Adjustment policy measures to supplement the imperfections of the market or to diminish uncertainties of the market are sometimes necessary and effective. Arrangements of the reasonable market framework such as competition rules, the company system and trade rules are basic factors for fair market activity. Supply of public goods such as social infrastructure, solutions for trade friction, promotion of technical innovation, protection of safety of goods and services, maintenance of energy security, solutions for pollution and protection of global environment cannot be obtained only by the market function. Desirable movement of labor forces from a sluggish industry to a growing one is not assured by the market mechanism in light of social stability and dynamic development.

As a consequence, industrial policy can be defined as the policy which affects industrial activities, in view of assuring fair competition, attaining dynamic progress and adjusting the relation between social welfare and industrial activities while supplementing market imperfections. However, the basis of industrial policy relies on the "market function". MITI's policy gradually shifted to expand the market function following the international climate, to cultivate the common ground of industrial activity such as competition rules and technological basis as well as to adjust industrial activity with social interest.

3. *Corrado Molteni*

You mention many times "giving advice", "giving suggestions": could you get a bit more specific on this point? We know that technically this advice is called in Japanese "Shi Do" (administrative guidance), but in some countries—that is, USA—it would be considered even abnormal that the government gives regularly administrative guidance and that companies in a way have to follow such administrative guidance. Also MITI used to elaborate "visions", a term that suggests a meaning neither concrete nor realistic, but in reality, they were visions that corporate leaders felt some duty, or even that it was in their interest, to abide and follow. So could you kindly give some

examples of what exactly administrative guidance implies and how the visions were developed and how they influenced the behavior of private companies?

Shinji Fukukawa In the 1960s, the Japanese economy expanded very quickly and industrialization was the key word. Heavy industry was changing the productive structure of the country: the steel and chemical companies were trying to expand their businesses and, in order to achieve high productivity, they wanted to build bigger plants. Also the automotive sector was growing and so we kept trying to concentrate it, creating only three or four groups out of eight automobile companies. At that time, as I said before, MITI tried to show its vision of the future, forecasting demand and supply. We were afraid that overproduction could take place and so we tried to enact "Gyosei-Shido" (administrative guidance), asking some private companies to cut off some investments and inviting them to concentration.

Our interventions were partly successful and partly unsuccessful: for example, the automobile industry tried not to follow the guidelines made by MITI. At that time, there were eight automobile companies, and we tried to amalgamate them, to put into three groups. But they did not follow the guidelines of MITI, and so still eight automobile companies are now operating. On the contrary, in the case of steel, they followed our guidelines: so unsuccessful and successful.

4. *Franco Amatori*

Again on successes and failures of MITI/METI.

Shinji Fukukawa I would refrain from assessing MITI's policy since such a work should be done by a third party. However, I would dare to point out some examples of successes and failures.

In my view, the first success was that MITI/METI maintained flexibility in making policies, following the industrial development. In the post-war period, MITI was forced to intervene in the market to make the use of limited resources, but gradually shifted to expand the market function, following industrial development.

The second was that MITI has provided eye-catching and reliable future visions so that private sector may work for its business expansion. "Heavy and Chemical Industrialization", "Industrial Relocation Plan" and "Knowledge Intensification Policy" are examples of this kind.

MITI asked other related ministries to prepare social infrastructure and workers training programs following their future industrial visions and prepared some kinds of financial, fiscal and tax incentives. Legal compulsory measures have mostly been limited to the maintenance of safety and fighting pollution.

The third was that MITI prepared guiding tools for sluggish industries to accommodate the change of circumstances and conditions. A labor-intensive industry like textiles was seriously influenced by the inflow of products from developing countries. The industries depending on the energy and resources such as iron and steel, non-ferrous metals, cements and pulps were forced to withdraw or shift to other industries at the time of the "oil shock". MITI provided some supporting measures to facilitate taking counter measures.

The fourth was that MITI provided the policy tools to stimulate Japanese industrial technological power. "Large Scale Technical Development Project" to push forward high integrated circuits and large-scale computer, "Sunshine Technology Program" to stimulate new energy technology and "Moon Light Technology Project" to push forward energy-saving technology are typical examples.

Japan suffered from serious industrial pollution that occurred from concentration of industrial activity in 1960s and 1970s. MITI, together with other related ministries, introduced strict standards for air, water and other pollutants, and stimulated technical capability. Through those efforts, Japan restored clean water and air in the 1980s and acquired a high level of energy efficiency in its industrial activity.

The fifth was that MITI proposed to stimulate the integration of "industry and culture" or "technology and art". Actually, it was my proposal when I was vice minister. I realized that in the middle of the 1980s the market drivers relating to goods and services were shifting from "price", "quantity" and "quality" to cultural factors such as "beauty", "sensitivity", "pleasure" and "creativity". Fashionable apparel, beautiful furniture, attractive cars, animation as well as amusement centers and events were some examples of these characteristics.

I submitted that this trend would be a promising one. Douglas McGray, a young American journalist, pointed out in 2002 that Japan had shown high performance of "Gross National Cool". Recently, "Cool Japan" is one of the current mainstream of industrial development.

With regards to failures, the first one was the delay to solve trade frictions with the USA and Europe. Trade frictions which focused on the export of steel, semiconductors, automobiles and others in the 1960s and 1970s gradually shifted to a closed system of Japanese market in the 1980s. "Market

Oriented Sector Selective" in 1985, "Structural Impediment Initiative" in 1989 and "Comprehensive Trade Talks" in 1993 were typical examples.

Although those trade frictions were solved by the middle of 1990s, I personally believe MITI should have pushed earlier the reform of the regulatory system as well as the import promotion with the view of a division of labor and industry with foreign markets.

The second one was to have been slow in cultivating venture businesses. MITI promoted the technical and scientific cooperation between business and academic circles in 1980s and also stimulated the venture businesses by providing fiscal and taxation support. However, opening of new businesses has still stayed at a low level.

The third failure was to have been unsuccessful in inviting foreign businesses into the Japanese market. The rate of foreign direct investment against GDP of Japan has remained at the level of 3.5% in 2013, while the US stands at 29.4% and EU at 49.4%. While I was working at the *International Trade Administration Bureau* in the early 1980s, I started the promotion policy and campaign for inviting foreign investment. However, regretfully, that level has not increased.

5. *Franco Amatori*

According to the traditional school of thought, in Japan bureaucracy-governing ministries like the one of finance or MITI are much stronger than politics. Do you agree with this position and where does this power come from?

Shinji Fukukawa I am asked whether a bureaucracy like MITI and MOF (Ministry of Finance) is more influential than elected politicians in Japan and where the power comes from.

Japan's governing system is based on the "Parliamentary Cabinet System". The cabinet should be responsible to the Parliament with regards to the administration, and the governing system should rely on "Rule of Law". National budget should be approved by the Parliament and laws are enacted by the Parliament. In this sense, politicians should be basically responsible and more influential in the political decision-making process. Formally, the Parliamentary political groups should be the major decision makers of economic policies.

However, just after the war, we suffered from the shortage of finance, foreign currencies, advanced technologies and food availability. MITI intervened

into the market to allocate foreign currency and also financial support. In the post-war economy, since Japan lacked capital, financial resources and technologies, MITI executed strong government intervention in the economy. In that case, we tried to expand the most basic industries, trying to allocate foreign currencies to specific sectors.

Consequently, foreign commentators and industrialists seemed to believe that MITI was much more influential than politicians.

But, after entering into the high economic growth process, MITI changed its style and tried to refrain from intervening directly into market functions, shifting toward advising and elaborating future visions. Further, MITI announced several future visions for industrial reform such as the "heavy and chemical industrialization", "knowledge-intensive industrialization", "reform of the industrial system", "energy security" and "Asian economic cooperation through Asia Pacific Economic Cooperation (APEC)". Those policy proposals attracted the eyes and interest of industrial circles and journalism and gave an impression that bureaucrats may have the leadership in policy making.

I would add that since bureaucrats of MITI and MOF are good for establishing reliable relations with political parties and politicians, their policies are in most cases accepted by political parties. These relations may give the impression that bureaucrats may be more influential than leading political parties.

6. *Franco Amatori*

According to some historians, MITI was not a cornerstone of the "Japanese miracle" and it is incorrect to talk about the "developmental state". How would you reply?

Shinji Fukukawa It's not easy to give my personal comments on whether MITI was a cornerstone of the "Japanese Miracle". Actually, Japan climbed up to the second largest economy in 1968, exceeding West Germany, and revealed tremendous industrial expansion in the world market. Ezra Vogel published a book called *Japan as No. 1* in 1979. Japan was ranked at the top in 1991–1993 in the *International Competitive Yearbook* made by the Institute of Management Development. These ones may symbolize the "Japanese Miracle".

However, I don't think that MITI was a cornerstone of the "Japanese miracle" because this economic expansion was mostly provided by the dynamism of private industrial businesses, although MITI successfully provided the future visions.

Further, in the 1990s, after the burst of the "bubble economy", the Japanese economy entered the long tunnel of recession called the "lost decade". In the tunnel, Japanese industries became less competitive against other surrounding Asian countries. ICT, bringing about new frontiers, has developed further with high speed, but Japan stands behind in this trend. I personally believe that MITI would have made further effort to push forward innovative capability of Japanese industry.

The Japanese economy has currently recovered due to "Abenomics". However, Japan is confronted with difficult structural problems such as the decrease in population and the aging of society, as well as serious fiscal deficits. The key for solving these structural problems is to push forward "innovation" in various ways. The industrial policy should focus on this point, together with cultivation of high-talented manpower.

From the Audience

Question by Luciano Segreto I want to ask you a provocative question. What kind of Japanese economy would we have witnessed without MITI? If MITI hadn't existed during the 1950s, the 1960s and the 1970s, what would have been Japan today?

Reply by Shinji Fukukawa That's a very tough question. Actually, MITI existed and so a hypothetical question is a rather difficult one. If MITI didn't give any suggestions or administrative guidance, perhaps the Japanese economy would have suffered of stronger up and downs; on the other hand, investments may have been much higher and overproduction would have taken place, damaging the economy. What MITI did was just reducing fluctuations, to make a smoother and longer expansion.

Question by Aldo Musacchio I come from Latin America. I study capitalism and State capitalism in Latin America and something that is very interesting there is that policy makers in Latin America came to Japan especially in the 1960s and 1970s trying to copy the Japanese model. Then they would go back home, trying to create a team like MITI, trying to implement the policies they learnt perhaps from someone like you, and then the outcome was a very different one. We'll end up with a lot of State-owned enterprises trying to do what the private sector was doing in Japan. There are many explanations for why this would happen. One has to do with risk aversion, that entrepreneurs

were much more risk averse. Can you tell us how did you balance the roles of the State and of the private sector so that you didn't end up like Latin America with State-owned enterprises everywhere?

Reply by Shinji Fukukawa The Japanese economy is based on the market economy. Just after the war, the government controlled the economy, but after the successful post-war reconstruction process was over, the economy was based on the market economy. As to SOEs, in the 1960s we did like the national railways, the national telecommunication, and so on; they were all owned by the government while major industrial activities like automobiles, steel businesses were entirely private. But in those years, it was rather difficult to foresee what the future trends of demand and supply would be. So MITI and other governmental agencies suggested some future visions. Private enterprises and financial institutions could understand what kind of businesses would have expanded in the future and what kind of businesses would not be so promising, so they took those visions into consideration for making their investment plans. There were frequent exchanges of ideas between the government policy makers and the leaders of private companies. I recall that I myself had very frequent contacts with business leaders, and we explained very briefly and precisely what the future of the Japanese economy would be. A deep relation of mutual trust existed in Japan between companies and the government.

Question by Patrick Fridenson At the beginning of your presentation you also mentioned the role of MOF. Can you explain how the visions of MITI and the visions of MOF interacted?

Reply by Shinji Fukukawa MOF had the authority to make the fiscal plan, if MITI was trying to pursue some specific measures and they needed some fiscal spending we had to ask to MOF to have some fiscal expenditures. MOF had the authority to allocate fiscal spending and also to build the tax system, and so it was a very powerful ministry; so of course when we tried to introduce some policies we had to negotiate them with MOF. Usually MOF was rather negative, it didn't want to spend any money for the private sector and so there were very tough negotiations where we had to explain why this spending would be necessary for promoting the industrial reconstruction, and so on.

Question by Andrej Yudanov During the Golden Age of MITI, some Japanese enterprises showed wonderful success. Was it among the aims of MITI to enlarge this trend and to make a big success become a great one?

Reply by Shinji Fukukawa Well, for instance in the 1960s, the steel and chemical businesses expanded very quickly, but after the oil crisis and in the 1980s, those industries shifted into a rather difficult condition, while electronic industries (as Sony) and also automobile industries (e.g. Toyota) continued to expand. In the 1980s, MITI stopped to give administrative guidance, but technological innovation was rather needed, and so MITI proceeded to stimulate those technological innovations, giving fiscal support and tax incentives. Now the situation has changed; the Japanese electronics companies are in a very difficult situation since they have to compete with Korean and Taiwan companies.

Question by Andrej Yudanov If I may, one more point. You mentioned administrative guidance and vision as a key tool for industrial policies, but there is another aspect that I would like to know if you consider it important or not: the presence of former officials of MITI as directors in private firms. I would like to know your opinion on how these officials of MITI were important in guiding the strategies and the decisions in the private sector. Some scholars consider them as lazy while some other scholars consider them as key persons in the managing of the real power of the firms. From your experience do you consider this aspect as an important one?

Reply by Shinji Fukukawa Yes, of course, MITI officials had very frequent contacts with the business leaders. I myself did it very frequently; sometimes, we shared our views, perhaps once a month; of course, we collected some useful information on what they were thinking and also on the market situation. At the same time, they got some information on what MITI was thinking, what MOF was thinking and what was going on in the political institutions realm. I think those exchanges of information were very useful not only for policy making but also for private management. Private companies tried to invite some old, senior government officials for the management; after finishing my work at MITI, I myself entered in a company as a vice president. Of course, we—retired officials at MITI—exchanged some views, but the government officials who entered private companies did not give any influence on policy making.

The Public Sector and the Regime of Capital in India, 1947–1975

Chirashree Das Gupta

Abstract This chapter focuses on the relationship between state and capital in the expansion of accumulation and the restructuring of the organisation of capital in the Indian economy in the first three decades after independence. This chapter examines how the phenomenon of the public sector in India arose in history and what were the principal stages in its development in the period of dirigisme in India so as to establish its role in the regimes of capital accumulation that subsequently developed in independent India.

Keywords Public sector • Accumulation regime • India • Capital stock • Capital formation • Capital investment • Regional disparity • Private sector • Access to technology • Neoliberalism • Dirigisme

JEL Classification B52 • F63 • N15 • N25 • N45 • O25 • O47 • O53 • P16 • P27 • R53

C. Das Gupta (✉)
Centre for the Study of Law and Governance, Jawaharlal Nehru University, New Delhi, India

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_10

Introduction

India's official acceptance of the "Washington Consensus" in 1991 consisted of three components—external liberalisation, internal deregulation and privatisation of the public sector as a means of integration into global trade and finance. In the process of ideological legitimisation of this shift to neoliberalism, an offensive was launched by neoclassical "experts" in economics to pronounce that the "public sector"—that is, the state-owned enterprises (SOEs)—and "planning" as an allocative tool were the ultimate culprits to be blamed for all that was perceived to be "wrong" with the economy (Datta 1992; Bhagwati 1993; Ahluwalia and Little 1998; Krueger and Chinoy 2002). This neoliberal perspective on India's public sector has been questioned by a range of perspectives from economists like Bagchi (1982); Chakravarty (1987, 1994) and Vaidyanathan (1994), pointing to the specific relevance of the public sector in capital scarce economies. Moreover, empirical work comparing productivity, physical efficiency and productivity of the public and private sector in India has shown a sustained rise in productivity and consistent performance from 1951 to 2003—a performance which has been much superior to that of the private sector in the same period (Nagaraj 2006).

Nevertheless, many more experts saw the solution of India's "problems" in the privatisation of the public sector. This increasingly found a guarded resonance in the high-ranking functionaries within the establishments of the state, reflected in publications since the late 1980s by the state (Government of India 1986, 1991). The neoliberal interpretation of India's public sector was also adopted by The Federation of Indian Chambers of Commerce and Industry (FICCI) which gave a cautious welcome to the move towards privatisation of the public sector and internal deregulation in its annual session in September 1991 (FICCI 1991), but openly advocated aligning with a regional trade bloc in anticipation of the developments around the Uruguay Round and the disadvantages envisaged with the formation of the World Trade Organisation (FICCI 1990, 1991).

The debate on the public sector and the rationale for privatisation has been a highly contested terrain. On the one hand, there has been a convergence of opinion of the organised platforms of capital and the dominant neoliberal anathema towards the public sector. The public sector is presented here as an ahistoric monolithic monstrosity that is supposed to have impeded and strangled *animal spirits* of private enterprise. These accounts are based on ahistorical perceptions of connections and relationships with the state in the spawning of "successful entrepreneurships" in the so-called market-led

process of development. There is an obvious reluctance to use the c-word *capital*, its social agency namely *capitalists,* and its system of social relations, namely *capitalism,* in these conventional accounts.

This chapter focuses on the relationship between state and capital in the expansion of accumulation and the restructuring of the organisation of capital in the Indian economy in the first three decades after independence. The chapter examines how the phenomenon of the public sector in India arose in history and what were the principal stages in its development in the period of dirigisme in India to establish its role in the regimes of capital accumulation that subsequently developed in independent India.

The chapter is divided into two sections. At independence, the capital accumulation regime in India was characterised by four constraints—capital, agrarian, tax and technology (Das Gupta 2010). Section I demonstrates that the public sector was critical in partially resolving India's early capital constraint. It also demonstrates that India's big capitalists and their representative organisations did not perceive the private and the public sector as competing entities in the period of dirigisme in India. On the contrary, they argued for a viable public sector for the sake of complementarity in the form of linkages and vertical integration and were proponents of the "mixed economy". The public sector in India was also an institutional response given the constraints on access to technology that most Third World nations faced at independence in the so-called Golden Age. However, the irresolution of the agrarian and tax constraint in India meant that the sustainability of the accumulation process pivoted on the regime, and with it, the public sector increasingly became mired in crisis since 1965.

The solution to the crisis came in the form of changes to the accumulation regime with a diversification of the capitalist class in India aided by the change in the policy regime of the state. This diversification had three dimensions: regional, sectoral and social. Section II traces the continuities and changes in role of the public sector within this changing policy regime and its link with the diversification and expansion of private capital in India in the period between 1965 and 1975. This section demonstrates that contrary to the neoliberal assessments of the Indian public sector, the relationship between India's capitalists and the state together shaped the changing role of the public sector in India. The public sector and the private sector were linked not only structurally and institutionally but also socially. Thus the trajectory of capital accumulation in India not only shaped policy regimes, but also determined the role of the public sector in India and the response of the changing policy regimes since 1947 to the role of the public sector.

Thus the neoliberal response to the public sector has very little to do with performance of the public sector and can be better explained by the compulsions of the regime of capital accumulation in India. This is the central argument of the chapter.

Section I

The weakening of colonial capital just before independence due to the ravages of World War II and the rise in mass resistance in the last phase of the national liberation struggle created a new economic space for Indian capitalists. They used these opportunities to engage in a process of expansion and diversification from the capitalist enclaves that had already begun to emerge in the interwar period. At the time of independence in 1947, private industrial capital in India emerged out of the war with massive profits, but was faced with a society scarred by war and partition and an economy in recession with very high rates of inflation. In response, the state sponsored path to capitalism in the first ten years after independence was faithful to the idea of the state restricting itself to Smithian duties: ensuring order and providing infrastructure. The state was to guarantee the continuation of the existing system of property rights and to make markets work better in keeping with classical liberal precepts. In the period under consideration, all wartime controls were removed from foodgrains, and the liberalisation of controls in the market for food was a significant policy move. Some import controls were periodically enforced, but on the whole there was no substantial policy push towards import substitution (Bagchi 1972; Mukherji 1988; Ghosh 1998).

Strategic industries, such as defence and communication, remained under state control through the provisions of industrial policy in continuation from colonial state policy. Just after independence, under the Industrial policy of 1948, only three industries were reserved for the state and another six were kept in the domain of the "public" sector (Government of India 1948). The Industrial Policy resolution in 1948 gave assurances to the classes owning business and industry that no existing enterprises would be nationalised. It categorically ruled out the takeover of existing private industry by the state for at least ten years. The first Five-Year-Plan document also made it clear that new ventures were to be exempt from all possibility of public acquisition for a period of ten years. No action was taken to break up the big business houses, either domestic or foreign, that exercised managerial control over hundreds of firms through the managing agency system and interlocking firms within the fold of the family owned business group. On the contrary, negotiations

were set in motion with the major British business groups to attract additional investment (Chenoy 1985; Frankel 2005; Das Gupta 2013a).

National income rose in the First Plan period from 1951 to 1956 by 18 per cent, an average annual growth of 3.6 per cent according to calculations based on the official National Accounts Statistics (NAS) data. Average per capita income between 1946 and 1954 was estimated to be Rs 253 (Mukerji 1965, p. 702). There was a simultaneous process of capital deepening and diversification of capital in industry during this period. There was intensive growth in the old sectors like cement, steel, paper and sugar whose expansion dated back to the period since World War I. This was the process of "deepening". But this was far outweighed by the extensive growth reflected in the index of industrial production in the "new sectors". This diversification process was pronounced in the rapid growth of "new" industries like diesel engines, bicycles, sewing machines, soda ash, caustic soda and super-phosphates reflected in the indices of production. Thus both the deepening and diversification of capacity dominated the accumulation of industrial capital in this period (Das Gupta 2016).

Thus even before the Second Industrial Policy and the "Period of Planned Development" from 1956 was ushered in, the capital deepening and diversification process in the domestic economy had already started.

Far from a strong "developmental" paradigm, however, this period was more a "free market" as far as the allocation of investment was concerned. The relation between state and capital was also defined by an ideology of liberalism as far as domestic and foreign capital was concerned. However, this "liberalism" during the First Plan period did not make any big difference to the capital formation in the economy as a percentage of GDP (Table 1). Capital formation hovered between 0.29 per cent and 0.43 per cent of GDP. The change in the stock of capital was below 0.05 per cent in three out of five years and became negative in 1953–1954. Thus "liberalism" ensured a political status quo in terms of property relations but also meant a status quo in capital formation. This outcome of the perpetuation of the capital constraint led to

Table 1 Gross capital formation (GCF) as percentage of gross domestic product (GDP)

Year	GCF share of GDP (%)	Change in stock as share of GDP (%)
1950–51	0.41	0.06
1951–52	0.43	0.06
1952–53	0.34	0.01
1953–54	0.29	−0.02
1954–55	0.35	0.01

Source: Author's calculation based on data from Central Statistical Organisation (2011), National accounts statistics, back series 1950–1951 to 2004–2005

the shifting of economic premises entailed in the Second Industrial Policy and the Second Plan from the earlier liberalism in economic policy.

In 1956, with the adoption of the Second Industrial Policy and the implementation of the Second Five Year plan, the state moved into the implementation of the ambitious premises of the Feldman–Mahalanobis model (Chakravarty 1987). This was a significant departure from the previous decade and encompassed all the major policy issues that were associated with giving the state in independent India a major role in building up infrastructure, expanding and strengthening the productive base of the economy, setting up new financial institutions and coordinating economic activity. The vehicle of this economic expansion would be the public sector. To address the capital constraint and to reduce the economy's dependence on international capital and commodity markets, the state was to attempt a sharp increase in the rate of savings in the system, an increased allocation of these savings to the heavy industrial sector with an emphasis on machine tools in particular (Patnaik 1984). This was perceived as necessary for building capitalism itself. To facilitate the economic expansion of capital, public investment was directed towards the development of basic and intermediate goods, communication, irrigation, education, research and development. Public sector enterprises were started with the objective of providing a steady source of capital and intermediate goods to sectors that were capital constrained and had long gestation periods in terms of profitability. Public funding of technological research institutes to provide the necessary personnel was also a feature of this period (Bagchi 1982; Chandrasekhar 1994; Frankel 2005).

The Second and Third Plan period (1956–1965) also witnessed an unprecedented fiscal expansion to stimulate demand, public investment in basic industries and creation of "loan" capital through public sector financial institutions to stimulate private investment. The stepping up of loan capital for industry through public sector financial institutions was in response to industrial lobbying to widen the sources of credit. It also facilitated the supply of capital and intermediate goods to the private manufacturing sector. External assistance and taxation were the two most important sources for plan financing. Due to the feeble direct tax effort, the burden of taxation fell on indirect taxes, which doubled from 1948–1949 to 1963–1964 (Government of India 1971). Thus part of the cost of financing this industrialisation effort was directly passed on to the general population. These policy measures gave a tremendous boost to those industrialists who already had an established hold over the "old" and "new" industries discussed earlier.

The Third Plan envisaged an investment programme of Rs 104,000 million over the period 1961–1962 to 1965–1966. Out of this, the target of

investment in the public sector was fixed at Rs 61,000 million. The targets for generating resources were also laid out at Rs 75,000 million for the public sector and Rs 41,000 million for the private sector. The resource mobilisation envisaged in the public sector was expected to cover the cost of its investment programmes and current expenditure and also transfer Rs 2000 million to the private sector to assist selected investments in agriculture, industry, housing and so on (National Council of Applied Economic Research (NCAER) 1966).

The FICCI welcomed these measures towards creation of the public sector as vital for private enterprise in dyestuffs, paints, medicines, antiseptics and so on, and appreciated the need for "vertical integration" through the creation of "linkage enterprises" (FICCI 1956). G.D. Somani as President of the All India Organisation of Industrial Employers, a key body within FICCI argued in 1956:

> would it not be better if the expansion of the public sector is viewed not as an end but as a means? (FICCI 1956, p. 6)

He went on to argue:

> the State has a purposive role to play in economic affairs, but this role should not be equated with or identified with the expansion of the public sector only. It should be much more pervasive in the sense that, within the framework of social objectives, constructive individual effort is helped and an atmosphere is created for the flow of new talent. (FICCI 1956, p. 7)

So the biggest representatives of capital envisaged the role of the state in investing in the public sector as a "crowding in" at the beginning of the Second Plan period. This evidence also refutes the assertions in the literature (e.g. Nayar 2001) that the representatives of private capital were opposed to the expansion of the public sector. The public and private sectors were not pitted as competing elements in the economy. Citing examples from the USA, FICCI asserted that production beyond the most primitive type was *capitalist* wherever it obtains in any part of the world with any political system within the postulates of a mixed economy (FICCI 1956).

> The fact of the matter is that today every national economy is a mixed economy in varying proportions (FICCI 1956, p. 7).

The share of the public sector increased marginally from 8 per cent to 12 per cent in six years between 1960–1961 and 1965–1966 (Fig. 1). The share of

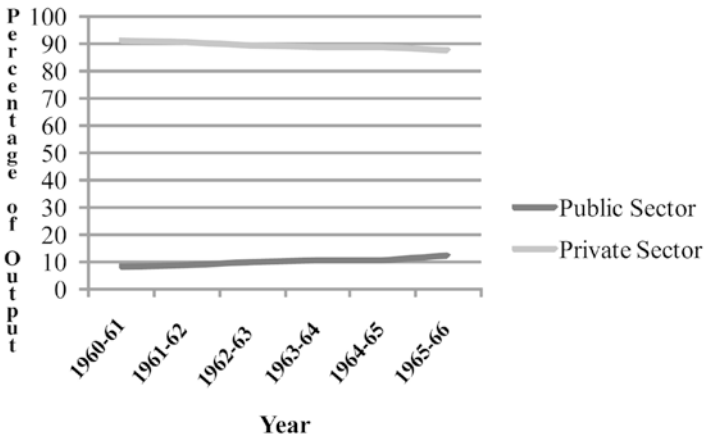


Fig. 1 Public and private sector shares in GDP (2004–2005 prices) (*Source*: Author's calculation based on data from Central Statistical Organisation (2011), National Accounts Statistics, Back Series 1950–1951 to 2004–2005)

the private sector on an average was 89.7 per cent of GDP. This has to be seen in the context of a non-existent "public sector" until 1950. Bhagwati's (1993) accusation of "a substantial public sector, going well beyond the conventional confines of public utilities and infrastructure" is thus hardly a tenable criticism for this period. Beyond utilities and infrastructure, the state set up public sector manufacturing units in fertilisers, chemicals, steel and oil and natural gas exploration, sectors requiring high levels of capital output ratios with long gestation periods. Thus these were sectors in which the private sector was incapable of venturing into despite its diversification measures. Nagaraj's (2006) study of public sector performance demonstrates that the public sector remained confined to investments requiring high capital output ratios right from 1950–1951 to 2001–2002. The profitability of central public sector enterprises trebled from the mid-1970s to reach a level of 21 per cent in 2003–2004. The maintenance of a constant share of output in the last three decades despite reduction in the share of investments also points to remarkable productivity growth "by any yardsticks" (Nagaraj 2006, p. 2552).

Gross capital formation in the public sector increased substantially from 1954 to 1955 from 2.78 per cent of GDP to 8.03 per cent of GDP (Fig. 2). National Income increased by 21 per cent during the Second Plan period between 1956 and 1961, an average annual growth of 4.2 per cent. Moreover, the share of agriculture in GDP fell from 52 per cent to 48 per cent between 1950–1951 and 1960–1961.

Fig. 2 Percentage share of gross capital formation in gross domestic product (*Source*: Author's calculations based on data from Central Statistical Organisation (2011), National Accounts Statistics, Back Series 1950–1951 to 2004–2005)

Table 2 Gross capital formation and change in stock of capital

Year	GCF share of GDP (%)	Change in stock as share of GDP (%)
1955–1956	12.6	0.5
1956–1957	14.8	1.7
1957–1958	14.7	1.7
1958–1959	11.5	0.0
1959–1960	13.5	1.3
1960–1961	14.6	1.8
1961–1962	14.9	1.5
1962–1963	15.7	1.7
1963–1964	15.6	1.2
1964–1965	15.8	1.3

Source: Author's calculations based on data from Central Statistical Organisation (2011), National Accounts Statistics, Back Series 1950–1951 to 2004–2005

In the Third Plan period between 1961 and 1966, National Income grew by 12 per cent, an annual average of 2.5 per cent. The slowdown in manufacturing was much higher. The annual percentage of gross capital formation as a share of GDP hovered between 11.5 and 15.8 in this period with a steady increase in the period of the Third Plan (Table 2). The net addition to stocks was between 1.2 per cent and 1.8 per cent for most of the period except for 1955–1956 and 1958–1959 when it was below 0.5 per cent. Thus capital formation in the economy showed a break in its pattern from the period of the

First Plan if we compare Tables 1 and 2. This is also reflected in the patterns of capital formation in the public, private and household sector illustrated in Fig. 2. Thus the shift from liberalism to indicative planning hinged on the development of a vibrant public sector had achieved its immediate purpose of breaking the stagnation in capital formation. In its immediate and narrow goal agreed upon by big capitalists and the state, indicative planning of the Feldman–Mahalanobis model using the public sector as a vehicle of development had achieved the purpose of breaking the stagnation in investment that had characterised the first decade after independence.

The dynamism of Indian capitalist development depended crucially on a continuous expansion of public investment. The expansion of the public sector was an essential stimulant for the continued expansion of the capitalist sector (Patnaik 1994). The private capitalist sector's expansion was piggybacking the public sector.

The Nehruvian model of state-led capitalist development was focused on increasing production without the requisite structural transformation in social relations to make the process sustainable. A strong argument emerged in the heterodox literature that the state's crisis from the mid-1960s was due to assumptions of fiscal omnipotence and failure to generate tax revenues (Patnaik 1984). This was directly linked to the state's inability to exercise any control or discipline over the agricultural and industrial elite with regard to taxation and increasing productivity in the private sector. This had a direct impact on the public sector. The public sector was unable to expand beyond a certain capacity to generate adequate funds for state activities. This has been attributed to the state's inability to discipline the capitalist class both in raising taxation levels and increasing productivity through climbing up the technology ladder (Patnaik 1994; Patnaik and Chandrasekhar 1995; Khan 2000; Chandrasekhar and Ghosh 2002).

While the overall economic strategy faced serious limits due to the perpetuation of the agrarian and demand constraint along with the technology and capital constraint, and did not in the end amount to a strategy of capitalist transformation that could be sustained, it did create pockets of very successful capitalist growth. This strategy sought to expand the market through current and capital expenditures. It cushioned the domestic capitalist class by investing in crucial infrastructure and basic industries and directed household savings to finance private investment through the creation of public sector financial institutions for industrial development like the Industrial Finance Corporation of India (IFCI), the Industrial Credit and Investment Corporation of India (ICICI) (set up with World Bank assistance) and the Industrial Development Bank of India (IDBI).

Section II

Within the significant overall increase in manufacturing output, the structure of manufacturing went through a number of different phases of change. In the early 1950s, consumer goods accounted for 60 per cent of the total output; within that, textiles were the largest single manufacturing industry. By the late 1970s, consumer goods accounted for 30–35 per cent, basic and capital goods for 50 per cent and intermediate goods accounted for the rest of the value added (Das Gupta 2016). This structural change has been evaluated in terms of ownership patterns of the public and private sector to often argue that the public sector in basic and capital goods grew at the cost of the private sector in consumer goods in India, leading to the ills of rent-seeking, distortions and disincentives which together led to the prescription for a reduced role for the public sector (Rosen 1988). Nagaraj (2006, p. 2552) provides the counter-argument in demonstrating that capital output ratios declined continually from 1951 to 2002 in the public sector. But in the private sector, it virtually remained constant in the same period. Thus productivity increases in this period are evident in the public sector but absent in the private manufacturing sector.

The correlation between public investment and industrial growth was clear to state functionaries in the Congress. K.V. Ganesh, Minister of State for Finance on March 25, 1972, told Parliament.

> right from 1962 when public investment decreased, there had been stagnation in industrial growth. Public investment and industrial growth have somehow become correlated as far as economics is concerned. (Lok Sabha, March 25, 1972, p. 12)

The nature of stepped-up public expenditure had not been solely geared towards enhancing growth in the existing industrial structure. According to M.S. Sanjeevi Rao, a Congress Member of Parliament from Kakinada, the state stepped up public sector investment in nuclear and space research programmes with increased annual layouts for accelerated space research projects, procurement of uranium concentrates and increases in operational costs of nuclear projects (Lok Sabha 1972, p. 16).

But it faced severe fiscal constraints caused by the strong resistance of the upper classes in India against step-up of progressive direct taxation of any form and their attempts at passing on the fiscal burden to people whose incomes were below the minimum exemption limit for income tax purposes (Bagchi 1998; Roy 1998). The particular problem of the failure of the state to

tax agriculture except for income from plantations has been a matter of central significance in the public finance literature since the 1950s (Toye 1981). Mathew (1968) established that the higher income groups within the agricultural sector were largely "undertaxed" relative both to those of comparable income levels outside agriculture and low income groups within agriculture. In fact, the most successful effort of the rich peasants apart from keeping property rights intact and maintaining agricultural prices was ensuring that agriculture remained outside the tax base of the state. Moreover, the unique status of the Hindu Undivided Family as the locus of interlocked corporate governance structures which facilitated various forms of legalised tax evasion also led to a large part of private capitalist accumulation outside the taxation structure (Das Gupta 2013b). Thus the state's ability to keep up investment in the public sector was severely dampened by the fiscal constraint. Deceleration in public investment that set in after the 1965–1966 crisis adversely affected a number of industries that catered to mass consumption or those with strong linkages to public investment. In addition, the slow rate of public investment contributed to infrastructure constraints.

The general pattern of industrialisation up to the 1970s shows a deepening of manufacturing enclaves India inherited from the colonial period. New upstream and downstream small- and medium-scale enterprises were developed, but their viability was tied to the large-scale units and thus dependent on central government investment policies within the limits of the state-led process. Although the choice of public sector enterprises that were developed was often quite ad hoc, there is substantial evidence that public sector enterprises assisted the trade and state-led economic expansion in Southern and Western India. Investments were often in entirely new areas like petrochemicals, software and biotechnology. These investments assisted the diversification and consolidation of the pharmaceutical, cement and chemical industries from the 1980s and the rise of petrochemical, biotechnology and software industries in the 1990s (Bagchi 1982; Rosen 1988; Saraswati 2012).

The case of Bihar illustrates the limits of both private and public sector investment. Mining and basic industries were important in South East Bihar, now Jharkhand. A steel plant was set up in 1917 at Kalimati by the Tatas, which later became Jamshedpur. Dhanbad was known for its cement, iron and coal controlled by a local mafia that reached the height of its operations in the 1970s and 1980s even after state takeover of the coal industry. There were eight private sector cement factories in Dalmianagar and Dehri-on-Sone. Barauni was developed in the post-independence period as an industrial centre based around a public sector oil refinery. There were a handful of top business families like the Birlas, Dalmias, Tatas and the Modis who led investments in

steel and cement in Bihar. Tata Iron and Steel Company (TISCO) developed its capacity in the post-independence period as a beneficiary of the licensing policy. The Tata-owned automobile company TELCO, Modi Steel and Bihar Sponge Iron Limited were also products of the Nehruvian promotion of the private sector in industry. The major beneficiaries were all big capitalists. Apart from mining, the other major industries in South Bihar were iron and steel. Thus heavy industrial expansion in South Bihar continued in the 1970s. Medium-scale firms were mainly in sugar. In 1974–1975, sugar co-operatives accounted for over 40 per cent of the total sugar output in Bihar. However, the conclave nature of industrial development meant there was not much "trickling down" of employment to the vast majority of the local population, though some ancillary units did develop in the Ranchi-Jamshedpur industrial belt.

In the same period, major public sector enterprises were also set up in Bihar. These included units of the Heavy Engineering Corporation in Ranchi, Bokaro Steel Limited, Bokaro, Indian Aluminium in Muri, Fertilizer Corporation of India in Sindri, Hindustan Fertiliser Corporation in Begusarai, Indian Drugs and Pharmaceuticals Limited (IDPL) in Muzaffarpur and Bharat Wagon in Muzaffarpur and Mokama. Apart from this, the state also invested in leather, construction and 18 agro-based industries (Department of Industry, Government of Bihar 1971; 1980).

In Bihar before its bifurcation and the creation of the state of Jharkhand in the year 2000, industry was concentrated in Singhbhum, Dhanbad and Hazaribagh. Dalmianagar developed as a base for sugar, paper and cement factories. Thus the growth of industry in Bihar was led by a combination of public sector expansion and activities of big private business houses benefiting from industrial licensing. The result was a mixed social structure driven by industrialisation on the one hand and the increasing oppression of unreconstructed agrarian exploitation on the other, once again due to the policy of non-intervention by the state in the realm of agrarian relations (Prasad 1986).

In Andhra Pradesh, which became a separate state in 1956 as a result of the States Reorganisation Act, the important and oldest organised industry in the state was the cotton textile industry. Out of the 21 units in 1967, three were composite mills of large size with 936,136 spindles, 716 looms and 200 power looms, eight were large spinning mills, four were medium-sized spinning mills (with a varied capacity of 5504 and 18,000 spindles) and the remaining six were weaving mills (14–128 looms). The form of organisation varied with five proprietary concerns including partnerships, two co-operatives, two private limited companies, 11 public limited companies and one unlimited liability company—all in the private sector. In addition, there

were two hosiery units of medium size. There was one textile unit producing artificial silk yarn taken over by a managing agency in the late 1960s. The former Hyderabad government had invested Rs 9 million accounting for 29.97 per cent of its paid-up capital besides guaranteeing a loan of more than Rs 30 million (National Council of Applied Economic Research (NCAER) 1962).

In the sugar industry, there were 12 units whose crushing capacity ranged from 300 tonnes to 3750 tonnes per day. The largest was a public sector unit, the biggest cane sugar factory in Asia along with a large-scale farm followed by another private sector unit with 2500 tonnes and the rest varying between 1000 and 300 tonnes. In 1966–1967, five fresh licences were issued to set up co-operative sugar factories with capacities from 600 tonnes to 1000 tons and plans for two more as part of the Third Plan. Power alcohol and carbon dioxide gas manufacture developed as subsidiary industries. There were two public sector units manufacturing alcohol, one power alcohol plant in the public sector, and four in the private sector of medium size. The structure of the carbon dioxide gas industry was similar with one public sector unit of large capacity and three private sector medium capacity units.

There were four medium to large jute mills in Andhra Pradesh all controlled by Calcutta-based jute enterprises with registered offices in Calcutta. Two were taken over by Calcutta-based members of the Indian Jute Mills Association while British Managing Agents controlled the other two. There were three smaller jute presses also owned by British managing agents, but connected to each other through interlocking directorships controlled by entrenched interests in Calcutta. Thus the structure of industry was not necessarily linked with "local capital" in the states that we have surveyed except for Gujarat where a strong mercantile class predisposed towards medium-scale investment in consumer goods existed since the pre-independence period.

A techno-economic survey of Andhra Pradesh commissioned by the government of India in 1962 argued that the factors inhibiting development in Andhra Pradesh included the "lack of venture capital" and the relative absence of an entrepreneurial class (National Council of Applied Economic Research (NCAER) 1962). In the Andhra region, private investment in industry was largest in sugar, followed by vegetable oil refining, textiles, chemical fertilisers, salt making, jute, mica mining and ceramics. Data on joint-stock companies between the period 1931–1932 and 1945–1946 for regions that later became Andhra Pradesh shows that most of the private companies were trading companies, chit fund companies, hotels, cinemas, road transport companies, oil mills and rice mills whose individual paid-up capital rarely exceeded Rs 50,000.

Similarly, in Karnataka, at independence, the private sector industrial base was mostly in small- and medium-scale textiles. From the 1960s, the state set

up industries like Hindustan Antibiotics Limited (HAL) and later Hindustan Machine Tools, which were the key industrial enterprises that sustained the urban economy around Bangalore. The growth of the small firms in and around Bangalore was directly linked to large-scale manufacturing units that provided inputs and markets for their products (Heitzmann 2004).

The effect of these policies of location of public sector industries on patterns of regional accumulation became visible and differentiated across states. With the old seats of industrial capital being caught in stagnation, Gujarat and Maharashtra saw a proliferation of trade, agro-based market expansion and finance. Punjab saw a pattern of small- and medium-scale based expansion in industry following the Green Revolution that had a direct impact on the economy of New Delhi. The eastern part of India, especially West Bengal saw a long deindustrialisation due to the weakening of colonial capital and the reluctance of capitalists to invest in big ventures after freight equalisation (Das Gupta 2016).

The question of the "technology gap" remained, in spite of the attempts at self-sufficiency through large-scale investment in research within the ambit of the Nehru–Mahalanobis period. The state functionaries by the early 1970s had admitted defeat in the project of "catching up" with nations of the First World. This was evident in Indira Gandhi's address to FICCI on March 31, 1973, when she conceded:

> No matter how much we run, we find that science and technology give such an advantage to the already advanced nations that with all our running we are unable to close the gap. (Government of India, 1984, Vol. II)

This marked the formal end of the particular "developmental" dream of climbing up the technology ladder using public sector collaborations. However, neither Indian industry nor the state ever put in any serious strategy to do this. Even in the 1950s the turnkey nature of contracts never had any clause for technology transfer because the only consideration sought from foreign suppliers was credit. In steel, fertiliser, machine tools and pharmaceuticals, the process of technology absorption, adaptation and upgrading remained contingent on the state's dependence on foreign loans and grants (Bagchi 1998).

Public sector enterprises played a critical role in the early development of the Indian pharmaceutical industry. In 1954, the first public sector drug company HAL was established with technical assistance from the World Health Organisation (WHO) and UNICEF (Lok Sabha 1954, p. 121). IDPL was established in 1961 with technical assistance from the Soviet Union (IDPL Annual Report 1965; Hathi Committee Report 1975). Three other public

sector companies were acquired by the state after they became "sick" under private ownership. These were Bengal Chemicals and Pharmaceuticals Limited (BCPL), Bengal Immunity (BI) and Smith Stanistreet Pharmaceuticals Limited (SSPL), all located in or around Calcutta. All the five public sector drug companies mentioned above played an important role in the production of essential drugs at affordable prices in the 1960s and 1970s. Both BI and BCPL were taken over by the central government after these became sick through running chronic losses over a significant period in precisely the time when the viability of drug manufacturing was improving under the new patent law, which recognised process patents.

The large integrated steel plants and heavy engineering complexes set up under the public sector initially generated a considerable amount of employment especially in the resource rich but industrially underdeveloped eastern and central regions of the country (Bagchi 1998). In 1972, public sector investment amounted to Rs 54,000 million (Lok Sabha 1972, p. 160). The politics of power, patronage and accommodation determined policies of "location" and often created contradictions. For example, a steel plant as a downstream industry for the alloy steel plant in Durgapur had been proposed in West Bengal (in the east) but was ultimately allocated to Salem, Tamil Nadu (in the south), the parliamentary constituency of the then Central Minister for Steel, Mohan Kumaramangalam. The setting up of a petroleum processing plant at Mathura (in the north) which was initially promised to Bihar (in the east) created discontent among functionaries of the Congress in Bihar (Lok Sabha 1973, p. 104). Thus the location of public sector units was itself a source of political competition within the factions and groups inside the Congress.

According to an estimate given by the then Finance Minister to the Lok Sabha in March 1972, there were 97 public undertakings with 14 projects in progress and at various stages of implementation marked by delays and disruptions. The important ones were the Bengal–Assam Refinery and Petrochemical complex and an aromatic and petrochemical complex in Koyali, Haldia Refinery (West Bengal), the fertiliser project in Korba (Madhya Pradesh) and Talcher (Orissa), an aluminium Project in Ramagundam (Andhra Pradesh), three steel plants in Salem, Visakhapatnam and Vijayanagaram, a scooter project in Lucknow (Uttar Pradesh), an expansion of the alloy steel plant and other steel plants in Bokaro (Bihar) and Durgapur (West Bengal), a copper project at Khetri and a pump and compressor plant at Allahabad (Lok Sabha 1972, p. 10). Public sector steel plants in Vishakhapatnam, Hospet and Salem were approved in the 1970s. The Salem Steel Plant was commissioned in 1981. The Visakhapatnam Steel plant, under Rashtriya Ispat

Nigam Limited was the country's first shore-based and its sixth public sector Integrated Steel Plant.

An examination of these ongoing projects suggests that state intervention was still aimed at expanding the production of basic, capital and intermediate goods through the development of the public sector through the period of the 1970s. In this sense, there was continuity in state policy from the Nehru–Mahalanobis period. What was different however was the selective but simultaneous opening up of these sectors to private initiative. Since the first half of the 1970s, the state imposed restrictions on big business while opening up opportunities for new capitalists through the Monopoly and Restrictive Trade Practices Act. This reflected the emerging power balance between the "old" and "new" business houses.

Paradoxically, the representatives of industry who were all in support of state intervention in agriculture for self-sufficiency in food production no longer hankered after self-sufficiency as a goal of industrialisation anymore. Acceding to their demands, in 1971, the state began the process of deregulation through the modification of the Industrial Policy Resolution of 1956. The only sectors that remained in the hands of the state were power, transport and communications and banking and insurance. A wide range of intermediate industries was handed over to the private sector (Lok Sabha 1972). The list of industries under state control was redrawn gradually over a period of 20 years so that by 1991 the domain of the public sector in manufacturing was back to its status at independence.

The regional distribution of loan and aid from the central public sector financial institutions was also politically biased against states that were ruled by parties opposed to the Congress in the 1970s and 1980s based on relative lobbying power. Table 3 clearly illustrates the regional imbalance in assistance to industrial development from the lead public sector IDBI over a period of 24 years. The Western states followed by the Southern ones saw the bulk of state assistance to capitalist development coming their way. The support to Maharashtra and Gujarat far outweighs the assistance to other states. The distribution of this allocation indicates the political clout of capitalists in these states and point to a systemic underinvestment in other states.

Further, with the nationalisation of coal mines, insurance and banking between 1967 and 1971, the public sector financial institutions became the pivot of development of the capital market. The source of primary accumulation by private entities depended on two kinds of "entitlements" from the state—land from the government and bank finance from the public sector and often the two were connected. According to a Congress (I) MP, K Suryanarayana,

Table 3 Regionwise assistance sanctioned and disbursed by IDBI (in Rs millions)

Region	State	Amount sanctioned from July 1964 to June 1988	Amount disbursed from July 1964 to June 1988	Sum disbursed regionally	% share of each region
South	Andhra Pradesh	26,851	16,602	60,629	30.3
	Karnataka	19,740	15,555		
	Tamil Nadu	28,791	21,738		
	Kerala	8266	6734		
West	Gujarat	35,480	26,294	66,965	33.5
	Maharashtra	39,526	29,403		
	Goa	3179	2403		
	Rajasthan	12,044	8865		
North	Punjab	9535	6812	47,375	23.7
	Haryana	8221	6016		
	Uttar Pradesh	31,427	22,246		
	Himachal Pradesh	3648	2492		
	Madhya Pradesh	14,647	9809		
East	West Bengal	15,430	10,095	24,947	12.5
	Bihar	7901	4565		
	Assam	2375	1963		
	Arunachal Pradesh	120	86		
	Manipur	212	141		
	Meghalaya	474	391		
	Mizoram	199	160		
	Nagaland	188	172		
	Orissa	9657	7102		
	Sikkim	147	129		
	Tripura	160	143		
	Union Territories	5825	4644		

Source: Author's compilation from IDBI annual report 1987–1988

> Financing by the nationalised banks, particularly the State Bank of India, to the farmers has failed… A man has secured 500 acres of land in the name of one dharmasangstha. He is a MLA and now minister in Andhra Pradesh. He belongs to my party. Taking advantage of personal and party affiliations, he has secured 500 acres of Government land and he has taken a crop loan also to the tune of nearly Rs 5 lakhs without any property security. The Government on being asked said that according to the State Bank Act, the details cannot be revealed. (Lok Sabha, March 14, 1972, p. 276)

This was in Tadepalligudem, a part of Suryanarayana's own constituency, which was a big commercial hub. The land did not even cost Rs 500,000.

Further, it was an undeveloped submerged land and was actually government land taken on lease in the name of a religious organisation. Nevertheless, a loan was given for raising crops. When Suryanarayana himself asked the bank for a loan, however, it was not ready to give him a loan for growing tobacco. From his account, he did receive a loan from one bank, but another bank did not give him even Rs 10,000 as crop loan to raise tobacco as tobacco prices had gone down (Lok Sabha, March 14, 1972, pp. 279–280). The account is relevant in two respects—it provides credible evidence of the political tussle around bank loans. It also suggests that the expansion of nationalised banks activities in rural areas in a context of agricultural stagnation meant that land was used as a means of primary accumulation. This was not for gaining access to a means of production but rather to gain entitlements to bank finance, thus facilitating the de-locking of finance from production.

Even if bank finance was not purely used for rentier purposes, from Table 4, it is clear that the major share of assistance went to the private sector between 1964 and 1975. Of the 66 projects sanctioned for assistance in 1974–1975, six were sponsored by technician-entrepreneurs. These were Modern Proteins Limited, Uniloids Limited, Brindavan Steel Limited, Coastal papers Limited, Drillco Metal Carbides (P) Limited and Nagarjuna Steel Limited. The main industries that were prioritised during this period were sugar, paper, cement, fertilisers and textiles. Thus public sector development banking after the nationalisation of banks in 1969 was geared towards direct finance and risk bearing for the private arena in the economy with chosen "lead" sectors (IDBI Annual Report 1974–1975, pp. 6–17).

Besides carrying the burden of supplying infrastructural inputs, the supportive role of the public sector to the private corporate sector can be seen in its revised policy vis-à-vis the investments of financial institutions. By virtue of holding (through the financial institutions) more than 25 per cent of the paid-up capital of private joint-stock companies, the state was in a position to wield consider-

Table 4 Sectorwise direct project assistance by IDBI (June 1964–June 1975)

Sector	Number of projects	Amount of project assistance (crores of rupees) 1 crore = 10 million	Percentage to total
Private	220	223.3	51.4
Public	13	37.5	8.6
Joint	44	156.8	36.1
Co-operative	11	17.1	3.9
Total	288	434.7	

Source: Author's compilation from IDBI annual report 1974–1975
Note: Project assistance in the table comprises loans, underwriting, direct subscription and guarantee

able influence over the private sector. But unlike South Korea, the control over financial resources had never been utilised to influence investment decisions in the private corporate sector. The reason for this is clear; the Indian capitalist class could create significant political space for itself in the allocation process in the ways described above. Thus the nationalisation of banks since 1969 and the creation of financial institutions earlier were meant to serve the needs of the capital accumulation process in keeping with the state-led paradigm.

There was an active promotion of a technocracy, which made up the core of skilled professionals in state run enterprises and nationalised banks. The ties between public and private sector managerial technocrats had a common basis in class and social background, which were not necessarily particularistic, and it was this corp that would join the next generation of technopreneurs and argue for disinvestments by the state in less than a decade. This was accompanied by another trend, as public sector managers and technocrats, where beneficiaries of the highly subsidised post-independence higher education system became "entrepreneurs", linked to the early "NRI" phenomenon of a next generation equipped with US degrees to take over the mantle if the "family business" took off or the setting up of new family businesses after a period of employment in the corporate sector in the USA and in India. Bank credit and social networks were key facilitators in this direction. The growth of a new set of capitalists in new sectors was greatly facilitated by a number of further factors: first, prosperity of a set of rich and middle farmers in certain parts of North and later South India due to the "Green Revolution" in wheat and rice; second, the growth of retail and wholesale trade beneficiaries who gained political leverage out of the food crisis through the "support price system"; and third, the emergence of a new set of "entrepreneurs" starting with relatively modest means in medium-scale industry through the gradual liberalisation of import content and no longer bound to the public sector for basic and intermediate goods (Das Gupta 2016).

Though public sector enterprises accounted for just 10 per cent of output in 2005 (FICCI 2005), historically they have been a training ground for technical staff and entrepreneurs who then entered the private sector. Our survey of 100 senior technical personnel between the ages of 45 and 65 in the pharmaceutical sector in 2003–2004 revealed that 71 per cent had initially worked in either public sector companies or research laboratories under the central government. Thus the public sector helped develop technological capability by extensive training of professionals and by building technology centres and companies. Along with public research institutions building up research and development capabilities, these accumulated production (*tacit*) knowledge and experience led to classic spillovers of knowledge and processes.

The biggest impetus to the industry from the public sector came in the field of research and development with the expansion of 80 government laboratories dedicated to chemical and pharmaceutical research. According to a statement by the Council for Scientific and Industrial Research (CSIR 2005), most pharmaceutical research originates in government-owned laboratories even in the contemporary period.

The reversal of the role of the public sector in India in pharmaceuticals started from the late 1990s. Under the privatisation process, the role of the public sector has been marginalised, and all the units progressively became "sick" through underinvestment. Attempts have been made to either privatise or close them. HAL's penicillin plant, the biggest in the country, has been handed over to the private sector. Its streptomycin plant has also been leased to a private company for manufacture of other drugs. IDPL, which had the biggest pharmaceutical plant in Asia, closed from 1996 for want of proper financial assistance from the government. The public sector drug companies used to supply raw materials to small-scale sector. After the demobilisation of the public sector, small companies face increasing difficulties in procuring raw materials. The fate of BCPL, BI and SSPL is similar. The move from tragedy to farce lies in the history of "sickness" in the case of these three units. These became public sector enterprises because the government took them over after these became "sick" under private ownership. The moves to their closure or privatisation gathered momentum as these were rendered "sick" again as state run enterprises by the 1990s.

With private sector investment and production decisions determined by the demand constraint emanating from the unequal distribution of purchasing power, government allocations were often out of line with flows generated by private agents. Planning became difficult to implement and also irrelevant, as private sector political clout determined allocations and hence the course of the economy.

Thus the process of uneven development was embryonic in the contradictions of the Nehru–Mahalanobis strategy, not because regulatory strategies are fundamentally polarising as is often argued. Our account so far demonstrates that the problems rather were the narrow ambit of the state's regulatory reach and the inability to sustain the regulatory mechanism because of the political power of the expanding capitalist class. These problems heralded a brief period of despotic populism in the 1970s combined with an increased centralisation of state power during the Emergency regime. This brief period was crucial in the renegotiation of both the extent and nature of state intervention.

Deregulation was pursued through delicensing and a change in the list of items reserved for the private sector defined by scale and allowing the entry of

the private sector into areas earlier designated for public sector. In most cases, private investment in both intermediate and final goods followed immediately, for example, in steel and petrochemicals. Sponge iron and pig iron were delicensed in the mid-1980s to meet the shortage of this vital product for the foundry and the mini-blast furnace units. The Jindal group (which is one of the biggest steel conglomerates) had already established their first plant at Hissar and was developing the second one at Vishakhapatnam.

The 1980s saw state policy changing towards the promotion of joint sector development and the selective opening up to Foreign Direct Investment (FDI) and diversification of the economy through state promotion of the telecom, petrochemical and IT sectors with a move towards export promotion. As the small- and medium-scale industries grew in asset formation, the upper limits for investment that defined these sectors were periodically revised to keep them still within the network of privileged patronage of the state.

Even in 1981, the FICCI president was arguing that "public sector versus private sector, domestic market versus export market and small industry versus large industry are 'dead' issues" (FICCI 1981). According to the analysis put forward by FICCI, the distinctive lines between the private and the public sector were blurred, and one merged into the other through the shareholding patterns and market-based linkages to bring about coordination and interdependence.

> Development of the private sector is greatly influenced by the growth of the public sector. The export market can be better served if industry has access to the domestic market. Small units develop faster when they are complementary to the growth of large industry. (FICCI 1981, p. 8)

The 1990s were characterised by a restructuring of the relationship with metropolitan capital and more recently by the intensified expansion of the top rungs of Indian capital into other countries. These changes then shaped the asset, stripping of the state through policies of "disinvestments" (privatisation) of the public sector. Thus the changing role of the public sector in India can only be understood in terms of the continuities, changes and compulsions of the overall regime of private capital accumulation in India after independence.

Bibliography

Ahluwalia I.J. – Little I.M.D. (eds) (1998), *India's Economic Reforms and Development: Essays for Manmohan Singh*, New Delhi, Oxford University Press.

Bagchi AK. (1972), *Private Investment in India, 1900–1939*, London, Cambridge University Press.

Bagchi AK. (1982), «Public Sector Industry and Quest for Self-Reliance in India», *Economic and Political Weekly,* 17(14–16), pp. 615–628.

Bagchi AK. (1998), «Globalizing India: A Critique of an Agenda for Financiers and Speculators», *Occasional Paper*, no. 169, Enreca Series, Calcutta, Centre for Studies in Social Sciences.

Bhagwati J. (1993), *India in Transition: Freeing the Economy*, Oxford Clarendon Press.

Chakravarty S. (1987), *Development Planning: The Indian Experience*, Oxford Clarendon Press.

Chakravarty S (1994), «On the Question of Home Market and Prospect for Indian Growth», in Nayyar D. (ed.), *Industrial Growth and Stagnation: The Debate in India*, Oxford University Press.

Chandrasekhar C.P. (1994), «Aspects of Growth and Structural Change in Indian Industry», in Nayyar D. (ed.), *Industrial Growth and Stagnation: The Debate in India*, Oxford University Press.

Chandrasekhar C.P. – Ghosh J. (2002), *The Market that Failed*, New Delhi, Left-Word.

Chenoy K.M. (1985), «Industrial Policy and Multinationals in India», *Social Scientist*, 13(142), March, pp. 15–31.

Das Gupta C. (2010), «Globalisation, Corporate Legal Liability and Big Business Houses in India», *Cambridge Journal of Economics*, 34(5), pp. 895–913.

Das Gupta C (2013a), «Planning and the Regime of Capital in India», *The Marxist*, 29(3), January – March.

Das Gupta C (2013b), «The Tenacity of the Hindu Undivided Family: Gender, Religion and Tax Concessions», *Economic and Political Weekly*, 48(40), pp. 73–75.

Das Gupta C (2016), *State and Capital in Independent India: Institutions and Accumulation*, Delhi and New York, Cambridge University Press.

Datta B. (1992), *Indian Panning at the Crossroads*, New Delhi, Oxford University Press.

Frankel F.R. (2005), *India's Political Economy 1947–2004*, Second Edition, New Delhi, Oxford University Press.

Ghosh J. (1998), «Liberalization Debates», in Byres T.J. (ed.), *The Indian Economy, Major Debates Since Independence*, New Delhi, Oxford University Press.

Heitzmann J. (2004), *Network City: Planning the Information Society in Bangalore*, New Delhi, Oxford University Press.

Khan M.H. (2000), «Rents, Efficiency and Growth [and] Rent-Seeking as Process», in Khan M.H. - Jomo K.S. (eds), *Rents Rent-Seeking and Economic Development: Theory and Evidence in Asia*, Cambridge University Press.

Krueger A.O. – Chinoy S. (2002), «The Indian Economy in Global Context», in Krueger A.O. (ed.), *Economic Policy Reforms and the Indian Economy*, Chicago, University of Chicago Press, pp. 9–45.

Mathew E.T. (1968), *Agricultural Taxation and Economic Development in India*, London, Asia Publishing House.
Mukerji M. (1965), «National Income», in Singh V.B. (ed.), *Economic History of India: 1857–1956*, New Delhi, Allied Publishers.
Mukherji S. (1988), «The Private Sector and Industrial Policy in India 1946–1956», in Bagchi A.K. (ed.), *Economy, Society and Polity Essays in the Political Economy of Indian Planning*, *in Honour of Professor Bhabatosh Dutta*, Oxford University Press, pp. 166–195.
Nagaraj R. (2006), «Public Sector Performance Since 1950: A Fresh Look», *Economic and Political Weekly*, 41(25), pp. 2551–2557.
National Council of Applied Economic Research (NCAER) (1962), *Techno-Economic Survey of Andhra Pradesh*, New Delhi.
National Council of Applied Economic Research (NCAER) (1966), *Indian Economy:1961–66*, New Delhi.
Nayar B.R.(2001), *Globalization and Nationalism: The Changing Balance in India's Economic Policy 1950–2000*, New Delhi, Sage.
Patnaik P. (1984), «Market Question and Capitalist Development in India», *Economic and Political Weekly*, 19(30), pp. 1251–1260.
Patnaik P. (1994), «International Capital and National Economic Policy: A Critique of India's Economic Reforms», *Economic and Political Weekly*, 29(12), pp. 683–690.
Patnaik P. – Chandrasekhar C.P. (1995), «Indian Economy under Structural Adjustment», *Economic and Political Weekly*, 30(47), pp. 3001–3013.
Prasad P.H. (1986), «Institutional Reforms and Agricultural Growth», *Social Scientist*, 14(6), pp. 3–19.
Rosen G. (1988), *Industrial Change in India 1970–2000*, Riverdale Company.
Roy R. (1998), «Riches Amid Sterility: Debates on Indian Fiscal Policy», in Byres T.J. (ed.), *The Indian Economy: Major Debates Since Independence*, New Delhi, Oxford University Press.
Saraswati, J (2012), Dot.compradors: Power and Policy in the Development of the Indian Software Industry, Pluto Press.
Toye J. (1981), *Public Expenditure and Indian Development Policy, 1960–1970*, Cambridge University Press.
Vaidyanathan A. (1994), «Constraints on Growth and Policy Options», in Nayyar D. (ed.), *Industrial Growth and Stagnation: The Debate in India*, Oxford University Press.

Other Cited Sources

Annual Reports (1971; 1980), Department of Industry, Government of Bihar.
Annual Reports (1956; 1981; 1990; 1991), Federation of Indian Chambers of Commerce and Industry (FICCI).

Annual Reports (1974–1975; 1987–1988), Industrial Development Bank of India (IDBI).
Economic Survey (1986; 1991), Ministry of Finance, Government of India.
Industrial Policy Resolution (1948), Government of India, 6 April.
Lok Sabha Debates (1954; 1972; 1973) Parliament Library, New Delhi.
Report of the Direct Taxes Enquiry Committee (1971), Government of India, December.
Third Five Year Plan, Planning Commission, Government of India, New Delhi.

Formation of Industrial Complexes in South Korea in the 1960s and 1970s: Reconsidering Entrepreneurial State in Asia

Eugene K. Choi

Abstract South Korea in the 1950s was one of the least developed economies in the world. The state-led industrialization for survival began from the 1960s, and since then, a distinct catch-up model for rapid economic growth was developed. The protagonist in the rise of the entrepreneurial State was an emergent community of technocrats. The technocrats, capable of administration and technology management, were the strategic architects of designing, planning, and executing the national innovation system. This introductory study examines the nature and role of the technocrats in the case of the evolution of Korea Industrial Complex Corporation (KICOX) since 1974.

Keywords Entrepreneurial State • South Korea • Industrial complex • Kicox • Technocrats

JEL Classification L26 • L32 • L52 • L53 • N45 • O20 • O25 • O38

E.K. Choi (✉)
Graduate School of Technology Management, Ritsumeikan University, Kyoto, Japan

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*, Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9_11

Industrialization in Haste for Survival and Independence

For a couple of decades after Korean War (1950–1953), the economic backwardness of ruined South Korea was technically irreversible. The remaining economic foundation was the barren agricultural sector, and it was considerably primitive; so little infrastructure was available. The war destroyed every domestic fulcrum for industrial takeoff, and there was another historical path dependency behind the regional backwardness. During the colonial period, most of the industrial capacity in the Korean Peninsula was concentrated in the North due to the regional access to mineral resources in Manchuria; the South was specialized in supplying staple goods, especially rice, for the Empire of Japan. Until the beginning of the 1970s, in the race for industrialization, the North was constantly ahead.[1]

The South Korean government had to step forward to initiate industrialization as soon as the American aid program was lifted in the end of the 1950s. Rather than an alternative, the stand-up of the entrepreneurial State from the 1960s was a dire measure for the survival and independence of the nation since then. In regard to the individual context of forging industrial policies in South Korean style,[2] the following three assignments surfaced before the government: acceleration of capital mobilization (and in wishful sequence, of capital accumulation), establishment of strong political leadership, and last but not least, enhancing national security. The first entailed the State's grand economic portfolio that shaped the national contour of mapping out essential industrial sectors. Within this State's design of planned industrialization, the most vital was speed in capital accumulation. Quick economic growth, driven by sturdy industrial sectors, was the most urgent.

In considering the concept of national capital for industrialization, it involved not merely with financial resources such as foreign loans but also, much more importantly, with institutional arrangements for securing and reserving advanced knowledge.[3] Money could be borrowed in short term, but acquisition and internalization of industrial, technological, and managerial knowledge were different in nature; they were time-consuming and certainly demanded another level of systemic efficiency in coordination,

[1] Amsden (1989), Part I, Chp. 2, Byung-Kook and Vogel (2011), Kim (2004), Vogel (1991), O W (1999), vol. 7, Part 1, Chp. 1.

[2] Regarding the national uniqueness in the late industrializers' institutional setting, ideology seems a significant element that influenced the distinctive national character in policy making. See Brandt (1998), Chp. 8, pp. 207–240; also see North (1981).

[3] O W (2006), Part 4, Chp. 2, on *Education (Training) of Male Technicians and Engineers*, pp. 388–428.

communication, transactions, and collaboration among the recipients of rapid knowledge accumulation. To deal with the knowledge-creating dynamics, the government chose a hard (or hardware-driven) approach, that is, set up physical milieu first, then expected development of "software" afterward. So the government first pinpointed the strategic sectors, such as heavy industry, chemicals, and shipbuilding, and second scrutinized the national geography to spot the strategic locations, then provided state-initiated geographical platforms, namely, exclusively selected territories, which would facilitate the swift emergence of new industrial clusters.[4]

The key aim behind this planned creation of infrastructural foundation was tied inevitably with the bold political ideology of anticommunist and powerful sense of impending crisis. In the high time of Cold War, the locus of South Korea as a frontline directly facing the three communist nations, that is, Soviet Union, China, and North Korea, put the nation in a constantly tense environment as well as in a sense of haste. The national ethos did not allow any typical case of relatively steady and linear industrialization, experienced by Britain and other neighboring continental powers in Europe. The risk of (Third World) war remained constantly around the specific region. South Koreans were sitting on a massive powder magazine. It was thus infeasible for them just waiting and seeing slow formation of highly "organic, evolutionary, and gradually emerging" matrices of agents and firms, just like those slow and continuous institutional sophistication in the nineteenth century British cotton spinning industry.[5] Every progress had to be made quickly, tangibly, and under control. The Korean situation of the 1960s was far more urgent and unstable than those of Germany and Russia, catching up Britain in the late nineteenth century. South Korea had neither choice in hand nor peace in mind.

In considering every dire national necessity under massive pressure and tension, bringing a determined entrepreneurial State straightforwardly in economic development was the only available institutional countermeasure for survival and independence.[6] It is essential to understand the concept, practice, and evolution of the state entrepreneurship in the history of the rise of South Korean capitalism, and this short chapter attempts to propose a few analytical

[4] The author finds the origin of the industrial competitiveness in "hardware manufacturing" (e.g. shipbuilding, automotive products, electronics, and most recently smartphones) resides in this historical context of the entrepreneurial State's key ideology in catch-up industrialization. See Choi (2015).

[5] Rose (2000), esp. Part I, on the *Culture of Business Networks 1750–1860*. Also see Brandt (1998, Chp. 8, pp. 207–240).

[6] This perspective was repetitively (and strenuously) reminded in every publication of the technocrat (and the architect of the South Korean industrialization in the 1970s), Mr. O Wonch'ol.

viewpoints, which were neither applied nor integrated in the past studies. In the following couple of sections, first a specific state enterprise as the main object of historical investigation will be introduced; second, a profile of the key persons who practiced the state entrepreneurship will follow.

Reconsidering Entrepreneurial State of "The Rest"[7]

Mazzucato's debates on the essential role of the government in technological innovation have verified the state's fundamental leadership in economic growth. Rather than merely fixing market failures, her study proved that not only the developing nations but also the state of the leading developed economies, especially USA, has been the protagonist of facilitating the formation of market itself; and this has become even more evident in the industrial development of the modern high-tech sectors. The state's entrepreneurial involvement, which is more comprehensive than hedging financial risks in heavy capital investment, proves the most significant drive in new technology development. The extensive involvement entails private firms' entry for the following technological development as well as commercialization.[8]

Mazzucato found that a very small number of firms have been able to initiate groundbreaking new research independently, and as long as the new technologies get more complex and costly in management, the possibility of private initiative has decreased even further. She questioned the conceptual drawback of the traditional economists' view on technological advance as an external variable in economic growth to discuss her findings that the frequency of technology-driven innovation positively correlates with economic growth. The past view on the governmental function mainly concerned creating (institutional) conditions for indirectly facilitating innovation, but Mazzucato's research delivers a different story.

Her investigation upon American industries explains that when the state acts "more entrepreneurially", namely, leading risk taking and market shaping via direct involvement with technological advance, economic growth could be achieved. This perspective shows her continuous questioning about the technical efficiency of pure market mechanism for innovation and instead her

[7] Amsden (2003), Chap. 1, *Industrializing Late*.

[8] Mazzucato (2011, 2013), *The Entrepreneurial State: "The State has not just fixed markets, but actively created them …"*.

belief in the unprecedentedly active entrepreneurial State, regardless of the level of economic development. From the industry-level case of the pharmaceutical sector to the firm-level case of Apple Corporation, Mazzucato verified how and how many the state-funded and state-driven projects have provided the technological foundations for the successful innovation in the USA.

The first noticeable conceptual limitation in Mazzucato's research resides in her specific focus upon the American cases, thus her viewpoints could be bounded within the Anglo-American context of business and industrial development. In regard to applying her framework to the entrepreneurial States of "the others" ("in different regions and times"), the following three stumbling blocks should be considered. First, Mazzucato's cases are those of the considerably recent ones. In considering the available technologies in both quantity and quality in the past and the present, her research provides still incomplete insights in global perspective. The second concerns her close examination of the chosen high-tech industries. The green innovation case, including wind and solar power, commonly entails considerable capital investment in the initial stage of infrastructural formation, so the technical context could be more or less overlapped with other cases, for example, constructions and civil engineering in developing economies in the past.

Last but not least, the most fundamental standpoint in Mazzucato's analysis derives from her constant focus upon the function of Market, powered by industries and technologies. That is, she began her debates from the precondition that the industries (already) exist. Now, a remarkable overlooking remains there. What if there was no industry at all? To put it differently, what if a state, certainly not the USA, had to design and create a completely unprecedented set of industries before Market? The government of South Korea in the 1960s was virtually placed in that circumstance, and before "de-risking or correcting" any Market failure, the state had to draw a blueprint of how to design their industrial formation, that is, supply side, that would lead to Market generation in consequence: regardless of considering the efficiency and functionality of Market, there was neither modern industry nor institution.

Is the state a bureaucratic, static, and neutral player in leading innovation and economic growth? Mazzucato's question and the following debate on debunking the past "stereotypical view" on the state could be elevated further by reconsidering those of "the rest" including South Korea in historical context.[9] Her approach has illuminated the role of the public sector agencies of the USA in leading innovation; the state's entrepreneurial capability has driven economic growth and formed the institutional foundation

[9] Amsden (1989, 2003).

of sustaining national competitiveness. This understanding considerably increases the scholarly potential in comparative researches on how the other entrepreneurial States in different conditions have accomplished the same through different contexts. As already denoted in her debate, Japan and some other successful Asian economies, for example, the four dragons, would provide remarkable insights since they have proven the most notable state-driven industrialization and formed regional clusters of technology powerhouse in the second half of the twentieth century.[10] This chapter on South Korea's case therefore attempts to make contribution to enriching the readers' knowledge.

Entrepreneurial State in Motion

The success or failure of sustainable economic growth has been determined by how a state could design and fabricate national systems of innovation. Regarding the perspective of innovation, the central concern was how to establish and grow the national pool of technologies, and every technology required creating new lines of knowledge dynamics. The most severe backwardness in the system of innovation of South Korea in the 1960s resided in the vacuum of well-coordinated knowledge-creating organizations.[11] Foreign technologies could be borrowed and transplanted, but the national economy necessitated a domestic mechanism of coordinating them systematically and rationally to produce solid industrial infrastructures; and the vital drive within the coordinating mechanism was knowledge-management capabilities.

So the most urgent and significant assignment of the state concerned the formation of human talents, namely, knowledge elites, which could absorb, transfer, and combine available resources, both local and overseas, to minimize trade off as well as opportunity cost in every technological choice. Yet, the state-level practice of enhancing knowledge foundation demanded both time and cost, and most of all, nobody in the government could anticipate which kind of institutional settings would certainly entail the best efficiency in the long term. Under the constant pressure from the urgency in speed innovation and economic growth, the first rational priority was placed upon the efficiency in installing visible infrastructures, and in consequence, the new knowledge-creation dynamics was expected within the evolving physical platforms.

Whereas Mazzucato's focus is on the present-day high-tech state agents in the USA, this chapter looks at the past case of South Korea. In comparison

[10] Mazzucato (2013).

[11] O W (2006).

to Mazzucato's case studies including pharmaceutical and green innovation sectors, the Korean cases in the 1960s and the 1970s should be surely "far less high-tech" (or to put it simply, somewhat "low-tech") in the level of knowledge complexity. As one of the most remarkable governmental agents in the earliest phase of the rising entrepreneurial State, Korea Industrial Complex Corporation (KICOX) should be introduced. It was established in 1974 as a public corporation for the promotion of super-rapid industrial development. KICOX was an early powerhouse of designing and executing the state project of clustering the most strategic manufacturing facilities according to the 30-year and five-staged master plan of economic development (1962–1991). It was a state brain that drew the national contours of resource concentration. The initial task was to clarify the vital industries for national securities, both economic and political, including automotive manufacturing, shipbuilding, electronics, and chemicals, then to make heavy capital investment on physical infrastructure: the priority was put firmly on hard and physical infrastructure development.[12]

More significantly, coordination of the locus of each cluster was proven even more critical, since this would accelerate knowledge diffusion among the infant sectors in vicinity. As already denoted earlier in this chapter, knowledge was so well recognized as the most fundamental deficiency in the national resource for innovation, and the state's ultimate goal was concerned with shifting its axis of national competitiveness from physical infrastructure to knowledge platform. The Korean strategy was to place the "talented people" in specific loci, in highly concentrated form. With regard to this planned and intended "population pressure", there was an expectation that the high density would facilitate more technological development due to increase in communication as well as knowledge creation. The logic behind this strategic intent was identical to Boserup's scholarly insight on the strong positive correlation between population pressure and technological development.[13]

The most essential nature in the birth and development of (modern) South Korean Capitalism could be well witnessed in the technical approach of KICOX: work upon earthmoving and civil engineering first; let everybody see with their bare eyes things are progressing certainly in physical terms, then inspire themselves and each other to make next collective actions for further progress. To put it simply, neither sophisticated philosophy nor intellectual ideology was pursued in the initial stage of industrial development. If there had been any, the code of behavior for the fellow citizens was straightforward

[12] Kicox (2013), *The Corporate History, 1962–2012*.

[13] Boserup (1983).

and crystal clear: act first, and think later, while you (we) are surrounded by "neighboring aggressors", that is, Soviet Union, China, North Korea, (and even Japan), the (entrepreneurial) State plans and leads you quickly to the right destination of national security as well as prosperity.[14]

KICOX's first project was focused on a particular region, *Changwon*, located in the very southeast of the Korean Peninsula, and the key sector in this cluster was general and precision machinery. Amid Cold War, especially in the tense condition of the cease-fire truce with North Korea, the South Korean government saw the quick formation of domestic industrial foundation, more specifically in heavy industries, would be the essential in the national defense. So the most important national concern was security; South Korea necessitated the domestic capability of mass production of weaponry. Solid manufacturing capacity in precision machinery was the primary assignment to form the defense industry, for example, supply of ammunitions, drilling and boring technologies for weaponry manufacturing. *Changwon* was a basin, walled by hilly mountains, but simultaneously well accessed to the sea, facing the Pacific, namely, the USA and Japan. It was "a natural fortress", geographically farthest from North Korean threat and meant to be the last industrial stronghold of national defense.[15]

In the kickoff stage, 42 companies including Hyundai, Samsung, LG, and Doosan gathered to form an ambitious industrial hub, virtually out of blue, of innovation and knowledge creation; since then for four decades, *Changwon* Industrial Complex continued its path-finding venture to constitute both the technological and the organizational forefront of the South Korean mechanics. In complying with the national call, the appointed corporations in the complex were expected to prioritize acceleration of (primarily, quantitative) growth in manufacturing capacity in accordance with the state's stage-guided plan of national economic development.

After the launch of *Changwon*, KICOX continued to clone the first prototype of industrial complex to create next clusters in different regions of the peninsular, and some of the followings were designed for the identical purpose, namely, heavy and defense industries, but a majority focused totally upon "civilian" manufacturing such as consumer goods and general commodities

[14] The author sees that the South Korean case could present a remarkable contrast to the historical context of Britain. A comparative approach to Britain and continental Europe would provide more research themes on the individual development of "modern-ness" of South Korea throughout the industrialization. See Cambridge historians' debates on the dynamics of modern identity and industrialization in the cases of Britain and continental Europe: Daunton (2007, 2008), Dauton and Rieger (2001), Mandler (2001), Trebilcock (1981).

[15] O W (1996a, b, c, d), vol. 5, Part 1, on *The Birth of the Defence Industry* and Part 2, on *The Development of Yul-Gok Project of Rearmament*; O W (2006), Part 2, Chp. 4, *The Promotion of the Defence Industry*.

for the improvement of material life. Nevertheless, it is worth reminding that the most prioritized national concern in their planned industrialization was surely derived from the security and defense, and the first birth of *Changwon* proved the historical context very well.

Today it consists of 2210 firms including venture capitals, SMEs, and global industrial conglomerates, employing approximately 90,000 workers: one of the largest, densest, and most advanced regions in manufacturing. A wide variety of the technological spin-offs from *Changwon* supported the swift improvement of technical capabilities in South Korea's automotive sector, shipbuilding, and especially machinery production, which constitutes a main pillar of the industrial competitiveness.

The Architect of KICOX

So who designed and initiated KICOX? For it was one of the earliest institutional platforms that realized the entrepreneurial State of South Korea, and the founder(s) should be the certain protagonists of state entrepreneurship in the 1970s. To put it differently, KICOX was a governmental body that the first architects of South Korean Capitalism initiated formation of modern industrial foundation. The period was under President Park Chung Hee's regime, and a variety of political elites, serving the Park's government, got involved with the national project of hyper-high speed industrialization.[16] Among them, the most well-known is Mr. O Wonch'ol; regardless of any public or academic reputation, the number of book publications about him, public records, and governmental memoranda proves that Mr. O was the most active technocrat, who played the distinctive role of President Park's "right-hand man" with regard to the state's blueprint of "Heavy and Chemical Industrialization" (HCI).

Up to now, the most thorough research on O Wonch'ol and the leading bureaucrats (or governmental project and bureau officers) under President Park's state enterprise is Kim's historical analysis from the very specific political and national perspective. Kim's collection of research materials in her debate seems, so far, the most complete, detailed, and systemic in approach, and the level of thickness in historical depiction is strikingly high. Yet, this leading academic discussion lacks theoretical fulcrums, which could support

[16] Hyung-A Kim's thorough investigation of primary sources in South Korea provide the richest details of the political history under rapid industrialization. See, Kim (2004), Part 2, *Military Rule and National-Building* and Part 3, *All-Out Reform*.

a variety of comparative approaches with other historical cases and models of capitalism. Kim's analytical standpoint is fixed firmly upon South Korea, the one nation only, and especially the domestic matter, surrounding the government body only.[17]

So Kim's research produced the densest reconstruction of the past context, and this succeeded to make an unprecedented level of contribution to our understanding of the "distinctive internal dynamics" of the political economy of South Korea in the 1960s and the 1970s. Kim's determined investigation on the domestic political institutions and policy makers could become even more valuable, when it will be combined with different disciplines such as business history, history of entrepreneurship, theories of capitalism and of government, and most significantly, Mazzucato's new viewpoints on the entrepreneurial State.[18] Although Kim achieved the most detailed historical monograph of the political dynamics within the government body, yet her debate could not pinpoint any distinct technical link between the South Korean political leadership and the innovation they achieved throughout the 1970s.

Some of these early scholarly attempts were made in Amsden's seminal works, but in contrast to Kim's approach to the precise reconstruction of historical context, her early research (i.e. in 1989) prioritized systematic theorization of a Korean model to examine the structure and dynamics of the specific state-driven industrialization.[19] Amsden's analytical insight on the South Korean pattern of catch-up industrialization achieved further theoretical development in the study of late industrializers in global perspective. Now every supply of more detailed historical primary sources would uplift the significance of Amsden's studies as a critical guidance for the policy makers of the developing economies of today.

The Rise of Technocrats for Entrepreneurial State

A significant scholarly contribution from Kim's historical research was to point out the three most essential characters among many in the formation of the entrepreneurial State in South Korea.[20] They are as follows: President Park

[17] Kim (2004).

[18] The author's motivation for examining the case of KICOX in the industrialization of South Korea derives certainly from the following references: Amatori et al. (2013), Amatori and Jones (2011).

[19] Amsden (1989), Part I, *The State and Business*, Chapter 4, *The Dynamics of Growth*; (2003) *The Rise of the Rest*, Part 3, Chap. 10, *"The Rest" Will Rise Again*.

[20] Kim (2004).

Chung Hee, Mr. Kim Jyung-Ryum (Head of President's Secretarial Office, from October 1969 to December 1978), and Mr. O Wonch'ol (Ministry of Commerce and Industry, from July 1961 to October 1970, President's Secretarial Office, from November 1971 to December 1979, Head of Planning Bureau of Heavy and Chemical Industry, from February 1974 to December 1979). The three leading minds were in charge of respective role in the rise of the Korean entrepreneurial State. While President Park took solid political leadership, Mr. Kim proved his managerial capability as an "Econo-crat", and Mr. O brought in engineering thinking as a "Techno-crat". So they constituted the conceptual and executive trinity in policy making.

Mr. O Wonch'ol's vast collection of memoranda throughout his service as a technocrat provides historians with new research challenge in reconsidering the vital elements of the entrepreneurial State. Regardless of his role in the government, O was so certain about the absolute significance of technocrats to develop and deliver the most competitive model of leading innovation and economic growth. That is to say, he believed that technocrats should form the frontline of designing as well as managing the national resource allocation. This did not mean that empowerment on them would guarantee the successful formation of national system of innovation, but O's insight resided firmly in his view that every policy making in catch-up industrialization should be masterminded, then executed by the state management with engineering approach.

It is worth addressing that his working standpoint as a government officer was something new, and his mindset was a conceptual challenge to the political tradition from the pre-modern Korea, which was led usually by the mandarin community, that is, the elite bureaucrats, educated in pure humanity and art subjects such as literature and philosophy. Trained and educated as a chemical engineer, O was determined to plan and execute every state project of industrialization in, according to his term, "engineering approach". He described this method as an architect's thinking, based firmly on rationality, precise calculation and numerical analyses, and system dynamics. O's engineering approach was addressed as "micro approach": from the stage of initial designing to the phase of operation, every numerical detail of the entire system, that is, a newly established industrial sector, should be carefully calculated and computed, then, assessed and tuned cyclically like mechanical engineers' maintenance work.

O's theory and practice of engineering approach did not imply technical precision in numerical system of industrial infrastructure development. The other vital perspective resided in the state's capability of seeing through the managerial lever of transforming the industrial sector into a profitable

business model. Namely, O did emphasize the criticality of business mind of (relentlessly) pursuing efficient mechanisms of creating new values, leading to the generation of new markets. In considering the dire demand of speed industrialization in his time, his pursuit of efficiency was carried out under massive pressure. Before trusting the power of "invisible hand", working in Market mechanism, O and his colleagues had no alternative but being the most "visible, positive, and capable hands" to design and manage modern system of manufacturing to let Koreans see Market.

In O's view, there was no technocrat existing in the South Korean government until the end of the 1960s. As a term, O defined technocrat as a bureaucrat, based on his knowledge and skills in technology management. Regarding this viewpoint, a couple of reasons could be denoted: first, most of the young would-be technocrats were not experienced enough although their education and training, and the second reason concerned the less integrated organizational structure in the state; that is, there was not yet a platform that could bridge the administrative officers and the technical staffs at frontline. In a separate form, they existed in the governmental body, and their talents could not be effectively collaborated to create new knowledge.[21]

Nonetheless, as the first phase of the five-year state project of economic growth and industrialization (1962–1966) was carried out until the middle of the 1960s, the state officers got experienced at their fields on daily basis. Then, as the upward learning curve gained acceleration, a new community of technocrats, in O's definition, emerged gradually before the beginning of the 1970s. O saw that the second half of the 1960s was the period when the domestic foundation for the entrepreneurial State was formed. And the talented technocrats at the ministry of commerce and industry (*Sang-Gong-Bu*) played the vital role of booting the systematic catch-up innovation, especially in the chemical and heavy industries throughout the 1970s.

The rise of South Korean technocrats was powered by the three key concepts and their practice in the 1970s: "Engineering Approach", "Construction of Export Oriented Industries (CEOI)", and "Impact Policy". The first concept, engineering approach, was already explained, and it was Mr. O Wonch'ol's core methodology, developed in the 1960s, and then fully applied to the industrial policy during his appointment at the president's secretarial office (1971–1979). The second, CEOI concerned the leading technocrats' vision of the promising industrial sectors, which would milk the national economy.

[21] Regarding the theoretical perspectives on efficient creation, sharing, enabling, and management of industrial knowledge, Nonaka and Teece provided a vital foundation for further potential debates on this South Korean case of catch-up industrialization. See Nonaka et al. (2001).

It is worth denoting that South Korea's present industrial cutting edge, for example, electronics, automobile, chemical products, and so on, mostly have their conceptual origins in the 1970s.

The last, "Impact Policy", was another strategic essence of the entrepreneurial State: the technocrats of the period were constantly under pressure to explore the most significant sector and bet their limited resources on the choice. It was an inevitable and extreme focus strategy with high expectation of ripple effect on the relevant. While the CEOI provided the technocrats with the state's blueprint of industrialization, the impact policy reflected the technocrats' rationale that was embodied through engineering approach.

Exploration of New Analytical Approaches to Entrepreneurial State

Both history and theory of entrepreneurial State in international perspective would be one of the most promising research fields henceforth, since the traditional market-driven global capitalism in this century seems under question. Market is so essential, and as proven in the South Korean case of late industrialization, it is the most fundamental element for capitalism. Yet the role of the state in innovation of powering the evolution of capitalism has become significant ever, and more scholarly investigations upon this theme will be necessary. This chapter presents the following three themes, which would provide new research potentials in further theorization of the entrepreneurial State in historical perspective.

Raison d'être of Industrial History

To understand the nature of the entrepreneurial State, especially in late industrialization, the analytical standpoint should be different from those for the developed countries and leading economies such as the USA. A theoretical challenge of the theme of this chapter concerns exploration of a new "agent" that was positioned itself as an influential intermediary, positioned between the traditional firm level and the state level, that is, a pan-industrial level. Including South Korea, most late industrializers commonly lacked both institutional sophistication for innovation and competitive private firms for leading innovation.[22] That is, the concept of the firm as an analytical unit

[22] North (1981, 1990), Acemoglu and Robinson (2012).

would provide us with rather little research potential in late industrialization. Instead, the entrepreneurial State's typical approach to catch-up policy has been applied to the level of an industrial segment: thus, if we could pertain precise primary sources on the pan-industrial features, they would promise historians to reconstruct much more significant histories of the entrepreneurial States and their innovations.

Economic history has dealt mainly with macro-economic perspectives, whereas business history has specialized in micro views such as business organization within firms and entrepreneurs. This has resulted in an inevitable bifurcation between the two scholarly spheres. As Kipping and Cailluet's research on Alcan indicated, a leading group of international business historians witnessed the absence (or underdevelopment) of an industry-focused approach in scholarly frameworks to examine the nature and logic of strategies in entrepreneurial management.[23] This was due to the technical difficulty in finding a reliable agent that provides a promising scholarly milieu of industrial history.

This chapter has brought forward a significant theme of KICOX in South Korea's catch-up industrialization in the second half of the twentieth century to probe public firms' potential as "agents" in the name of entrepreneurial State and the foundation of industrial competitiveness. And the central attempt in the research theme resides in the potential of theorizing the entrepreneurial State from historical perspective. Jones and Friedman also called for more studies on entrepreneurial management as well as entrepreneurial typologies from the state level.[24] My study would respond to their calls in global perspective.

Revisiting Theory of Fiscal-Military State in the Case of South Korea

In every past study regarding South Korea's catch-up industrialization, the state-guided business initiations were thoroughly reviewed and agreed with its invaluable impact on the industrial takeoff. However, surprisingly little attention has been paid to how the government financed its entrepreneurial project. To put this more specific, little has been known about how the state secured its income to be entrepreneurial positively. Foreign capital could constitute a quick financial foundation, but borrowing always deteriorates the

[23] Kipping and Cailluet (2010).

[24] Friedman and Jones (2011); also see Amatori (2011).

autonomous sovereignty. Since national independence was the top priority even before industrial takeoff, heavy reliance upon foreign capital had to be avoided by all means; then, tax revenue became the essential source.

As already denoted in the previous section, the political turbulence in the particular region continued especially in the 1970s, and South Korea was not only an entrepreneurial State but also a "warring" state. In considering this national context, application of theory of fiscal-military state would be an appropriate approach to reconsider a South Korean history of the entrepreneurial State from the perspective of public finance. Certainly in every state enterprise including KICOX, there was no free lunch; the government needed money.

Amsden's[25] investigation clarified that in the "Big Push" in the 1970s, the state's active support on the quick formation of heavy industry was financed considerably by the foreign capital. But more significantly, her study found that the ratio of foreign debt from overseas loans to South Korea's Gross National Product between 1973 and 1989 was constant. This implies that the soaring investment upon the state project of industrialization was financed by the domestic sources, and they were certainly from the government's tax revenue. Yet, the structure and change of the state income has not been investigated thoroughly, and once the picture becomes clear, this will lead to scholarly contribution to the further theoretical development of the fiscal-military state in global perspective.

This is a daring scholarly challenge for the decisive purpose of enriching as well as refreshing the dynamic theory of fiscal-military state, based upon the British model in the seventeenth and the eighteenth centuries.[26] Regardless of the considerable periodical lag between the two, the author finds little technical difference between Britain and South Korea in regard to aggressive exploration and exploitation of their domestic revenue portfolio under significant intentional tension, that is, France for Britain, North Korea for South Korea.

Industrialization of South Korea in Global History

This research potential is derived from the necessity of a new analytical framework of industrial history. The majority of the past historical analyses, either economic or business, were framed in accordance with the national borders,

[25] Amsden (1989), Part I, *The State and Business*, Chapter 4, *The Dynamics of Growth*.

[26] Brewer (1990), Bonney. (1999).

namely, nations, and South Korea has been not an exception. My third proposal for theoretical approach resides in the dominant logic of Global History. Rather than looking at the success of South Korea's catch-up industrialization as an independent, separate, and closed context, it should be essential to reassess the industrial history in global context. Namely, it was a part of the continuous global transformation, and their success could be achieved due to the multilateral connection with the evolving global economy.

Global Economic History Network (GEHN) in the 2000s already accomplished critical academic contribution to the economic history of the Korean civilization as well. Nevertheless, little progress has been made in the viewpoint of business history: more specifically, business history of the entrepreneurial State in rapid catch-up industrialization. One of the most feasible directions of upcoming development of this research would therefore reside in a stream of Global History cascade henceforth. With some scholarly ambition, this research approach would entail a series of attempt of linking up theoretically with Wallerstein's world-systems analysis.[27]

Concluding Remarks: Revisiting Gerschenkronian Theory?

This chapter has just presented an introductory research outcome of the South Korean entrepreneurial State in historical perspective. In considering theorization of late industrialization, the most well-known classic study should be Gerschenkron's essay on "Economic Backwardness in Historical Perspective", first published in 1962. Including this seminal publication, a majority of the past theoretical development afterward mostly followed his insights; and no new scholarly breakthrough has been spotted for more than half a century since then. It should be denoted that, since the year of Gerschenkron's publication, an absolute majority of the late but striking catch-up industrializaion has been accomplished in Asia, especially in East Asia. Yet, theorization of their models of innovation and economic growth is comparatively underdeveloped, and data is still insufficient. In comparison to the presence and status of those late industrializers, the level of academic achievement is so asymmetrical.

[27] Wallerstein (1983, 2004). In regard to Wallerstein's theoretical framework, Mielants' essential literature review provides an excellent insight along with other theories in the past. See Mielants (2007). Also see, de Soto (2000). Furthermore, Aoki's approach from institutional economics supplies a variety of solid frameworks. See Aoki et al. (2012).

This chapter will be concluded by delivering a brief summary of my next research on the nature and evolution of the entrepreneurial State in the specific case of South Korea. There is no doubt that the talented elite technocrats such as O Wonch'ol led their nation's "hyper industrialization in speed and under control", but the technocrats were never alone. In borrowing O's term, the rise of "Econocrats" was another significant element of the South Korean success in catch-up, and the organizational dynamics among the different groups of different state elites created the institutional foundation for Big Push to innovation and economic growth. The vast collection of O's memoirs and published records derived from his notes and journals at work will be further analyzed; at the same time for the scholarly rigor in historical perspective, this should be cross-checked by other historical sources from both South Korea and overseas. My right next research will examine the detailed nature and context of evolution of the South Korean technocrats in the 1960s and the 1970s. If any, their common abilities, characters, ideologies, and cultures would be analyzed to verify whether they were the principal source of state-level innovation. My upcoming research would facilitate theoretical furtherance of the remarkable field of entrepreneurial State.

Bibliography

Acemoglu D. – Robinson J.A. (2012), *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*, New York, NY, Crown Publisher.

Amatori F. (2011), «Entrepreneurial Typologies in the History of Industrial Italy: Reconsiderations», *Business History Review*, vol. 85, no. 1, pp. 151–180.

Amatori F. – Millward R. – Toninelli P.A. (eds) (2013), *Reappraising State-Owned Enterprise: A Comparison of the UK and Italy,* (Routledge International Studies in Business History), New York, NY, London, UK, Routledge.

Amatori F. – Toninelli P.A. (2013), «Does a Model of Italian State-Owned Enterprise Really Exist?», in Amatori F. – Millward R. – Toninelli P.A. (eds), *Reappraising State-Owned Enterprise: A Comparison of the UK and Italy*, New York, NY, London, UK, Routledge, pp. 31–49.

Amatori F. – Jones G. (2011), *Business History around the World* (Comparative Perspectives in Business History), Cambridge University Press, UK.

Amsden A.H. (1989), *Asia's Next Giant: South Korea and Late Industrialization*, New York, NY, Oxford University Press.

Amsden A.H. (2003), *The Rise of "the Rest": Challenges to the West from the Late-Industrializing Economies*, New York, NY, Oxford University Press.

Amsden A.H. – DiCaprio A. – Robinson J.A. (eds) (2012), *The Role of Elites in Economic Development (A Study prepared for the World Institute for Development Economic Research of the United Nations University)*, Oxford University Press, UK.

Aoki M. – Kuran T. – Roland G. (eds) (2012), Institutions and Comparative Economic Development (International Economic Association), New York, NY, Palgrave Macmillan.

Bonney R. (ed.) (1999), *The Rise of the Fiscal State in Europe 1200–1815*, Oxford University Press, UK.

Boserup E. (1983), *Population and Technological Change: A Study of Long-Term Trends*, University of Chicago Press, IL.

Brandt V.S.R., «Korea», in Lodge G.C. – Vogel E.F. (eds) (1998), *Ideology and National Competitiveness: An Analysis of Nine Countries*, Cambridge, MA, Harvard University Press, Chp. 8, pp. 207–240.

Brewer J. (1990), *The Sinews of Power: War, Money and the English State, 1688–1783*, Boston, MA, Harvard University Press.

Byung-Kook K. – Vogel E.F. (eds) (2011), *The Park Chung Hee Era: The Transformation of South Korea*, Cambridge, MA, Harvard University Press.

Choi E.K. (2015), «Hyundai's Dynamics of Styling-Driven Capability Development: A Historical Analysis of the 1970s–1990s», *International Journal of Automotive Technology and Management*, vol. 15, no. 3, pp. 292–310.

Choi E.K. (2009), «Entrepreneurial Leadership in the Meiji Cotton Spinner's Early Conceptualisation of Global Competition», *Business History*, vol. 51, no. 6, pp. 927–958.

Daunton M. (2008), *State and Market in Victorian Britain: War, Welfare and Capitalism*, Suffolk, UK, Boydell & Brewer.

Daunton M.J. (2007), *Wealth and Welfare: An Economic and Social History of Britain 1851–1951*, New York, NY, Oxford University Press.

Daunton M.J. – Rieger B. (eds) (2001), *Meanings of Modernity: Britain from the Late Victorian Era to World War II*, Bloomsbury Academic, UK.

De Soto H. (2000), *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Ever where Else*, New York, NY, Basic Books.

Dobbin F. (1994), *Forging Industrial Policy: The United States, Britain, and France in the Railway Age*, Cambridge University Press, UK.

Finer S.E. (1997), *The History of Government III: Empires, Monarchies, and The Modern State*, Oxford University Press, UK.

Friedman W.A. – Jones G. (2011), «Business History: Time for Debate», *Business History Review*, vol. 85, no. 1, pp. 1–8.

Hall P.A. – Soskice D. (eds) (2001), *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, Oxford University Press, UK.

Heilbroner R.L. (1985), *The Nature and Logic of Capitalism*, New York, NY, W.W. Norton & Company.

Hirschmeier J.S.V.D. (1964), *The Origins of Entrepreneurship in Meiji Japan*, Cambridge, MA, Harvard University Press.

Hirschmeier J.S.V.D. - Yui T. (1975), *The Development of Japanese Business 1600–1973*, Oxford, UK, George Allen & Unwin Ltd.

Kicox (Korea Industrial Complex Corporation, *Han-Kuk San-Up Dan-Ji Gong-Dan*) (2013), *Han-Gang Eui Ki-Juk, Pogum-Jari Ban-Segi: San-Up Dan-Ji O-Ship Nyun* (The Miracle of River Han, The Home Nation in 50 Years: Korea Industrial Complex Corporation), Seoul, South Korea.

Kim H.A. (2004), *Korea's Development Under Park Chung Hee. Rapid Industrialization, 1961–79*, Abingdon, Oxfordshire, UK, Routledge.

Kipping M. – Cailluet L. (2010), «Mintzberg's Emergent and Deliberate Strategies: Tracking Alcan's Activities in Europe, 1928–2007», *Business History Review*, vol. 84 (Spring), pp.70–104.

Lindert P.H. (2004), *Growing Public: Social Spending and Economic Growth Since the Eighteenth Century*, New York, NY, Cambridge University Press.

Lodge G.C. – Vogel E.F. (eds) (1998), *Ideology and National Competitiveness: An Analysis of Nine Countries*, Cambridge, MA, Harvard University Press.

Mandler P. (2001), «The Consciousness of Modernity? Liberalism and the English "National Character", 1870–1940», in Daunton M.J. – Rieger B. (eds) (2001), *Meanings of Modernity: Britain from the Late-Victorian Era to World War II*, pp. 119–144.

Mazzucato M. (2011), *The Entrepreneurial State*, London, Demos.

Mazzucato M. (2013), *The Entrepreneurial State: Debunking Public vs. Private Sector Myths*, London, UK, Anthem Press.

Mielants E.H. (2007), *The Origins of Capitalism and the Rise of the West*, Philadelphia PA, Temple University Press.

Millward R. (2013), «The Nature of State Enterprise in Britain», in Amatori F. – Millward R. – Toninelli P.A. (eds), *Reappraising State-Owned Enterprise: A Comparison of the UK and Italy*, pp. 11–30.

Nohria N. – Khurana R. (eds) (2010), *Handbook of Leadership Theory and Practice: An HBS Centennial Colloquium on Advancing Leadership*, Boston, MA, Harvard Business Press.

Nonaka I. – Teece D.J., «Research Directions for Knowledge Management» (Part III, Chapter 16), in Nonaka I. – Teece D.J. (eds) (2001), *Managing Industrial Knowledge: Creation, Transfer and Utilization,* London, SAGE Publications, New Delhi, Thousand Oaks.

Nonaka I. – Toyama R. – Konno N. (2001), «SECI, Ba and Leadership: A Unified Model of Dynamic Knowledge Creation» (Part I, Chapter 1), in Nonaka I. – Teece D.J. (eds) (2001), *Managing Industrial Knowledge: Creation, Transfer and Utilization*, London, SAGE Publications, New Delhi, Thousand Oaks.

North D.C. (1981), *Structure and Change in Economic History*, New York, NY, W.W. Inc., Norton & Co.

North D.C. (1990), *Institutions, Institutional Change and Economic Performance (Political Economy of Institutions and Decisions)*, Cambridge University Press, UK.

O W. (1995), *Han-GukHyungKyong-Je Kun-Seol: Engineering Approach,* vol. 1, (Korean Model of Economic Growth: Engineering Approach, vol. 1), Han-GukHyung Kyong-Je Jung-Chek Yun-Ku-So, Seoul, South Korea.

O W. (1996a), *Han-GukHyungKyong-Je Kun-Seol: Engineering Approach,* vol. 2, (Korean Model of Economic Growth: Engineering Approach, vol. 2), Han-Guk Hyung Kyong-Je Jung-Chek Yun-Ku-So, Seoul, South Korea.

O W. (1996b), *Han-GukHyung Kyong-Je Kun-Seol: Engineering Approach,* vol. 3, (Korean Model of Economic Growth: Engineering Approach, vol. 3), Han-GukHyung Kyong-Je Jung Chek Yun-Ku-So, Seoul, South Korea.

O W. (1996c), *Han-GukHyung Kyong-Je Kun-Seol: Engineering Approach,* vol. 4, (Korean Model of Economic Growth: Engineering Approach, vol. 4), Han-GukHyung Kyong-Je Jung-Chek Yun-Ku-So, Seoul, South Korea.

O W. (1996d), *Han-GukHyung Kyong-Je Kun-Seol: Engineering Approach,* vol. 5, (Korean Model of Economic Growth: Engineering Approach, vol. 5), Han-GukHyung Kyong-Je Jung Chek Yun-Ku-So, Seoul, South Korea.

O W. (1997), *Han-GukHyung Kyong-Je Kun-Seol: Engineering Approach,* vol. 6, (Korean Model of Economic Growth: Engineering Approach, vol. 6), Han-GukHyungKyong-Je Jung-Chek Yun-Ku-So, Seoul, South Korea.

O W. (1999), *Han-GukHyungKyong-Je Kun-Seol: Engineering Approach,* vol. 7, *Nae-ga-Jeon-JengwulHaja-Nun Kut-to AnijiAn-Nunya* (Korean Model of Economic Growth: Engineering Approach, vol. 7, I did not mean to make war with North Korea), Han-GukHyung Kyong-Je Jung-Chek Yun-Ku-So, Seoul, South Korea.

O W. (2006), *Bul-Guloui Do-Jeon, Han-Gang oui Ki-Jeok: Park Chung Hee nun U-Tuk-ke Kyung-Je Kang-Guk Man-Deol-Un-Na* (An Indomitable Challenging Spirit and The Miracle of Han River: Park Chung Hee's Realization of Economic Growth), Dong Suh Press, Seoul, South Korea.

Ostrom E. (1990), *Governing the Commons: The Evolution of Institutions for Collective Action*, Cambridge University Press, UK.

Rose M.B. (2000), *Firms, Networks, and Business Values: The British and American Cotton Industries since 1750*, Cambridge University Press, UK.

Trebilcock C. (2013), *The Industrialization of the Continental Powers 1780–1914*, Routledge, Oxford, UK (first published in 1981).

Vogel E.F. (1991), *The Four Little Dragons: The Spread of Industrialization in East Asia*, Cambridge, MA, Harvard University Press.

Wallerstein I.M. (1983), *Historical Capitalism with Capitalist Civilization,* London, UK, Bidled Ltd.

Wallerstein I.M. (2004), *World-Systems Analysis*, Duhram, North Carolina, Duke Univerity Press.

Index

Note: Page numbers with 'n' denotes notes.

D. Felisini (ed.), *Reassessing the Role of Management in the Golden Age*,
Central Issues in Contemporary Economic Theory and Policy,
DOI 10.1007/978-3-319-48722-9