Industrial constructions: The sources of German industrial power

Gary Herrigel
University of Chicago

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Germany's rise to industrial might has traditionally been attributed to the development of "organized" capitalism, which is said to encompass large, bureaucratic corporations, a unique system of universal banking, centralized peak associations, and an accommodating state. Gary Herrigel argues that this conceptualization of the sources of German industrial power is highly misleading because it ignores the achievement of a very robust alternative form of capitalism within the boundaries of the German political economy and overestimates the coherence of the national system of industrial governance. Herrigel shows that alongside the organized capitalism system, the development of the German political economy, from the 18th century to the present, was also driven by highly specialized and flexible small- and medium-sized firms, deeply embedded in a larger system of relations with labor, communal organizations, educational institutions, and local and regional governments. These two distinct forms of capitalism were able to coexist within the same national political economy, Herrigel shows, through the construction of a composite of distinct governance mechanisms at the national level. The upshot of Herrigel's argument is not only that there were several processes of industrialization that occurred simultaneously in German history, but that there has never been a single boundary between industry and the rest of society and politics in Germany; there have always been several. Theoretically, the book rejects the fundamentally unitary conceptions of industrialization and political economy underlying the Gerschenkronian, Schumpetarian, and Chandlerian principles that shape the traditional organized capitalism research program in the study of the German industrial economy and argues for a more open social constructivist approach.

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Industrial constructions:
The sources of German industrial power

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Mark Granovetter

This book is dedicated to my father
Bruce D. Herrigel
and to the loving memory of my mother
Joy McGill

Preface

This book has taken a long time to write. Along the way, I received enormous amounts of help, advice, suggestions, criticisms, encouragement, and support from people and institutions who are so numerous I am sure that my effort to name them here will be incomplete. I offer my apologies to those that I overlook.

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Every author, I suppose, has an inner circle of friends and friendly critics who are always willing to talk one more time about problems and chapters that even those friends have already nearly memorized. In my particular case, this inner circle performed yeoman-like service well above and beyond the boundaries of the reasonable. These people are: Chuck Sabel, Jonathan Zeitlin, Tony Levitas, Richard Locke, Anno Saxenian, and Nick Ziegler. At the very last minute, Bob Taylor read the entire manuscript with lightening speed and provided the author with helpful advice and much needed reassurance. No words can really express my thanks for the unfailing support of these friends throughout this entire process. Carol Horton, my wife, gets her own sentence in this particular line of thanks. She not only agreed to read things at particularly difficult junctures and provide advice, but she also learned over time to distinguish between what was truly a problem and what was merely neurosis. I'm not so sure how happy she is to have been able to learn this latter skill, but it was very helpful to me that she did. In a very different vein, I would like to extend my gratitude to our dog, Cleo Horton, who, though she had no idea of what my project was about or of the substance involved in the stresses in my life, provided me with constant and unqualified love and support as I struggled along.

Finally, I would like to dedicate this book to my parents, who encouraged me in my endeavors even when the substance and direction of the latter seemed to them to be utterly obscure and foreign to their own experiences. I deeply appreciate them for that.

Contents

1

Introduction: Problems with the German model

Most historical and contemporary accounts of the political economy of industry in Germany written since the end World War II depict a highly centralized, large-firm-dominated, ultimately neocorporatist industrial system whose characteristic institutional features all can be traced back to Germany's "late" industrialization. Interest in this national industrial system, which has been variously described as "organized capitalism," "coordinated managerial capitalism," or a "coordinated market economy"[1] has been widespread both because of its consistent historical success in world markets, and because this success often has been taken to demonstrate how countries can achieve economic development by actively shaping market forces rather than being shaped by them. The argument of this book agrees with much of the latter lesson drawn from the German case, but claims, nonetheless, that the received post World War II model of the German industrial economy and its history is highly misleading, partial, and rooted in a problematic understanding of industrialization.

The alternative picture of the German political economy presented in this book is one in which the traditional model of the German industrial system is repositioned into a larger, regionally differentiated, national framework. My argument is that two distinct, parallel, and internationally competitive systems of industrial organization and practice, located in different regions, have characterized the German experience at all levels of the economy and society since the very onset of industrialization. These different systems continue to shape adjustment in Germany today.

One of the regional systems, which I will call the *decentralized industrial order*, will be, as a system, unfamiliar even to many readers knowledgeable of the German case. This alternative form of industrialization is composed of multitudes of highly specialized small- and medium-sized producers and a host of extra firm-supporting institutions. Together, these actors have created (and in part were created by) a system of governance mechanisms that stimulate innovation, socialize risk, and foster adjustment, at both local and national levels, in ways that do not resemble the governing principles of either markets or hierarchies. Finally, the decentralized industrial order is not at all the outcome of late industrialization. Its origins can be traced back into the seventeenth and eighteenth centuries to regions that had property relations and political structures that favored the small property holder and supported simultaneous engagement in agricultural and petty industrial pursuits.

The second regional system, which I will call the *autarkic industrial order*, resembles in many respects the model that shapes the attention of traditional accounts: It is dominated by very large scale, vertically integrated enterprises with close ties to universal banks and it came into existence relatively late in the 19th century. The autarkic industrial order differs from the traditional organized capitalism system, however, in that it is understood to be a regional system whose primary organizational and strategic characteristics in production and governance are shaped at least as much by the desire to cope with environmental uncertainty than by the imperatives of efficiency. Indeed, for much of the history of industrialization in Germany, producers in the autarkic industrial order were similar to producers in the decentralized industrial order, in that both types of producer attempted to maximize flexibility in production and favored the production of relatively specialized products. The two forms of organization differed in that the autarkic form of industrial order relied upon the firm and the large-scale enterprise to govern this strategy, whereas the producers in the decentralized industrial order did not.

An important consequence of conceptually repositioning the organized capitalism model of the German political economy into a larger framework of multiple regional industrial systems is that the problem of the governance of the national political economy as a whole has to be reconceptualized as well: How have two different systems of industrial practice in Germany been governed within a single national political economy? As a solution to this problem, this book suggests that the heterogeneity of governance that exists at regional and industrial levels in Germany also exists at the national level in the form of a nonintegrated, composite architecture of national industrial-governance structures.

The logic behind this claim is straightforward. Since the process of industrialization in Germany was not a unitary social transformation, but a variety of regionally distinct ones, it also was true that the process of creating national-level rules, policies, and institutions for the governance of economic processes (e.g., national financial institutions, taxation schemes, tariff structures, railroads, legal rules about contract, industrial agencies, and policies, etc.) did not involve the construction of a single, uniform system of governance, nor even a single or uniform boundary between the national institutions of economic governance and society. Rather, unique and discreet institutional solutions were sought and, in most cases, provided for the national-level governance problems posed by the regionally distinct systems of industrial order. The national political economy of Germany has always been a complicated composite of industrial-governance structures – even when at particular historical moments there appeared to be considerable integration between the different industrial orders – and continues to be so today.

The vehicle for this reconceptualization of the industrial order of the German political economy is an insistently constructivist orientation to economic and industrial processes: All organizational and governance forms that shape production, including the institution of the firm itself, are viewed as outcomes, not the starting points, of historically specific social, economic, and political conflicts about the structure of the social division of labor. Moreover, where traditional narratives assume that industrialization was a single unitary process and that firms and markets were the primary mechanisms shaping the development of production, the analysis here emphasizes the organizationally and governmentally heterogeneous character of industrialization. Each of the regional industrial systems to be presented in this book involve very different ways of organizing and governing industrial production, are shaped by different logics of competition, and involve different relationships between industry, society and politics, at all levels of social life. In order to emphasize the embedded and constructed character of these regional industrial systems, I use the term industrial *order* rather than the more standard, yet more narrowly economic terms such as industrial structure or industrial organization to characterize their organization.

It is the task of this introduction to explain, elaborate and justify these claims. The chapter will thus have three parts. The first section presents and critiques the traditional "late development," organized capitalism conception of the German political economy and the underlying vision of industrialization that it contains. The second section then presents the empirical outlines and theoretical underpinnings of the alternative account that subsequent chapters in the book will develop. A final section outlines the overall organization of the book.

The traditional conception of German political economy and its problems

The advantages of the latecomer and organized capitalism

Much of what today can be considered to be the standard understanding of the contemporary German industrial system and its historical development can be traced back to the early post World War II writings of Alexander Gerschenkron.[2] His work both sketched out the main institutional pillars that make up what came to be the received post War view of the German industrial political economy and helped to create a paradigm for understanding the relationship between the economy and politics more generally in the process of industrialization. His influence has been pervasive in post 1945 comparative politics and political economy as well as in much of the scholarship on the history of business and industrialization. This is true, moreover, not only of the post World War II literature on Germany, but also of the broader literature on the political economy of industry and industrial development throughout the developed and developing worlds.[3]

Gerschenkron's most influential general claim was that nations could improve their position in the international division of labor through political and institutional adaptation. The German case, he argued, illustrated this extremely well. Before industrialization, Gerschenkron's Germany was a backward country. It had no industrial infrastructure – no skills, poorly developed markets, little capital, and few entrepreneurs. The essential pieces required for economic progress, in other words, were all absent. There were no firms to organize production, no factories with mechanized production, and no free labor markets. The basic starting point for Gerschenkron was his rejection of the idea that market forces alone could produce the pieces needed for economic progress.[4]

The Germans circumvented the market in three ways. First, with the help of the state they acquired the most advanced technologies then available on the world market. Second, they utilized the advantages of their own backwardness to construct large efficient plants. Latecomers such as Germany, Gerschenkron suggested, could produce with very large scale production economies because they were not beset by the problems of competition among numerous smaller firms, which often slowed the pace at which earlier industrializers achieved efficient scale economies. The Germans could create firms that started out at the largest and most efficient scale of production as dictated by the reigning international standard of efficiency. Finally, Gerschenkron pointed out that to finance all of this development, the Germans developed a unique form of bank that combined the strengths of both the British commercial banks and the French investment banks. German universal banks collected short-term deposits and pooled local capital in order to subsidize long-term investments to industry. Taken together, these three achievements created the core characteristics of the traditional conception of the German industrial system.

This combination of technological and institutional innovation, in his view, ultimately affected both the structure and organization of industry. Bankers directed their industrial clients into the fastest-growing industries – especially the heavy industries, such as electrical engineering, iron and steel, heavy machinery, and chemicals – and gave them the capital they needed to continue purchasing the best technology and implement it at the most efficient scale. Finally, as financial capital became more concentrated toward the end of the 19th century, this resulted in the concentration of industry as well. Centralized control of large swaths of an industry prompted the banks to encourage their holdings to take advantage of scale economies through amalgamation and cartelization.

In the post World War II period, this story of overcoming backwardness and the model of the core characteristics of German industrialization – advanced technologies, large plants, concentrated markets, universal banks with close linkages to large industrial enterprises, and a helping state – was generally accepted as a seminal portrait of the most characteristic and distinctive features of German capitalism and its experience of industrialization. Since the publication of Gerschenkron's original essay in the early 1950s, there have been a number of important extensions, elaborations, and modifications of particular pieces of Gerschenkron's argument with specific regard to the German case, and many of his general causal claims have been solidly refuted.[5] Yet, as with most robust research programs, the criticisms and refinements have affirmed the value of the initial insights about the central institutional characteristics in the German industrial experience.[6]

Jürgen Kocka and many of his students, for example, deepened the Gerschenkronian view by linking it to the pioneering work of Alfred Chandler on the development of the modern industrial enterprise.[7] This link was forged by showing how the development of the corporation in Germany was shaped by the timing of industrialization. Sharing Gerschenkron's assumption about the lack of industrial talent and institutions in agrarian 19th century Germany, Kocka argued that German corporations were forced to grow very large very rapidly. The lack of any industrial infrastructure in the face of exogenously generated technological opportunity and competition forced the firms to incorporate most of the operations of production in-house.[8] Moreover, given the highly fragmented structure of the consumer markets that German producers served, it was difficult for producers to achieve the kinds of production economies that were typical of large producers in the United States. The distinctive character of large German enterprises was their broad diversity and their capacity to produce specialized products in relatively small, single-lot sizes. Now, following Kocka, Chandler himself has recently emphasized that large German enterprises grew large by optimizing economies of scope rather than economies of scale.[9]

In the view of this school of German business historians, these artifacts of the lateness of German industrialization were further enhanced by another dimension of the lateness of German development: bureaucratization. Kocka pointed out that although the Germans industrialized late relative to Britain and other western European powers, in the political sphere German states had been quite advanced in their construction of modern bureaucratic organization. Indeed, because these bureaucracies had emerged before the process of industrialization began, the new industrial firms constructed their own large organizations by self-consciously borrowing organizational principles from the states.[10] This isomorphism had two consequences. First, it explained how large German enterprises tended very early on to develop many of the kinds of managerial hierarchies and internal functional specializations that Chandler had shown to be the outcome of large-enterprise development in the United States – in many cases even before such innovations occurred there.[11] Second, the central importance of vertical integration combined with the availability of bureaucracy in general created a strong tendency among German industrial firms to circumvent the market and rely on the bureaucratic governance of their industry through the use of cartels, close linkages to banks, and other forms of interfirm cooperation. Modern capitalism in Germany, according to Kocka and his colleagues, was "organized capitalism," or in the more recent words of Alfred Chandler, "Cooperative Managerial Capitalism."[12]

A second current of modifications of Gerschenkron's original theses came from technological historians such as David Landes and a host of other more specialized writers. Landes, in particular, traced in great detail the slow pace by which "advanced" British technologies, such as the steam engine, the self-acting mule, and the puddling process in steel making were transferred to Germany.

Their sudden adoption near the middle of the 19th century came at a scale that catapulted Germany into rapid industrialization.[13] Once industrialization had come on line, Landes showed, the development of German technologies in chemicals, steel, and electrical engineering benefitted from the timing of the industrialization process as well. Their original lateness had encouraged the German state to develop institutes to pay attention to the new industrial technologies and educate people to produce them. This created a continuously self-replenishing pool of engineering talent, and just as importantly, an extensive infrastructure of public support for industry that enabled Germany to move into "science-based" industries such as chemicals and into the most advanced forms of steel making. This, moreover, at the same time as (and in the case of chemicals, even ahead of) the British.[14]

A third critical modification of the Gerschenkron model came from Richard Tilly's work on the development of German banking, which shows clearly how commercial banks were able to pool scarce capital to subsidize the growth of massive firms, although he claims that the intensely close bank–industrial firm ties described by Gerschenkron were not especially important in the early period prior to 1871.[15] After 1871, however, Tilly showed how extremely close relations between joint stock companies (which represented, in his view, the most "modern" sectors of the economy) and the banks played a crucial role in sustaining German industrial growth up to the first World War. The contribution of large banks was to foster the continued growth of the largest and most technologically and organizationally advanced enterprises, and the growth of these enterprises made overwhelmingly significant contributions to growth.[16]

Finally, the very important work of Sidney Pollard, Hubert Kiesewetter, Rainer Fremdling, Richard Tilly, Klaus Megerle, and others took Gerschenkron's insight that the timing of industrialization creates the possibility for variety in the speed and character of industrialization and turned it on Gerschenkron himself. They called into question Gerschenkron's taken-for-granted emphasis on the nation–state as the appropriate unit of analysis for understanding the process of European industrialization.[17] In place of the nation–state these authors emphasized the crucial importance of the region as a differentiating factor in the process of industrialization. In their view, industrialization in Germany was simultaneously a part of a larger European process and a regional phenomenon: It occurred only in certain specific regions and among those regions it began earlier and later, faster or slower, depending upon (a) the social, political, technological, and resource endowments that existed there and (b) the extent and character of trade and supply linkages with industrializing regions elsewhere in Germany and Europe.

The key aspect of this literature is that its explanatory focus is less on the development of institutional, organizational, and especially governance forms and practices than it is on relatively more macro- and narrowly economic variables (such as growth, income, consumption, productivity, industrial output, exports, etc.). Consequently, these authors have never disputed the basic organizational teleology in the above, modified, Gerschenkron view (i.e., that large