



CHAPTER 1

Development and Modernization Under Socialism and After: An Introduction

*Jutta Günther, Dagmara Jajeśniak-Quast, Udo Ludwig,
and Hans-Jürgen Wagener*

I SOCIALISM IN EAST GERMANY AND POLAND

The catastrophe of World War II and its aftermath had a lasting influence on the social and political development in Central and Eastern Europe. Germany was the culprit of the catastrophe, and Poland was one of the most hurt victims. Both countries were confronted with severe war damages and the loss of great parts of their traditional territory. In the case of Germany, the split-up of the country, and in the case of Poland, the gain of new territories, massive demographic losses, and massive forced inner

J. Günther
Chair of Economics of Innovation and Structural Change,
University of Bremen, Bremen, Germany
e-mail: office-guenther@uni-bremen.de

D. Jajeśniak-Quast
Center for Interdisciplinary Polish Studies, European University Viadrina,
Frankfurt (Oder), Germany
e-mail: jajesniak-quast@europa-uni.de

© The Author(s) 2024
J. Günther et al. (eds.), *Roadblocks to the Socialist Modernization
Path and Transition*, Studies in Economic Transition,
https://doi.org/10.1007/978-3-031-37050-2_1

migration (see Chap. 2) were the consequences. The geographic, demographic, and geopolitical disruptions made it necessary to initiate a huge recovery program, reintegration, and transformation. Germany may be counted among the precursors of modernity already in the 1920s, while Poland still was backward in the interbellum period. They now implemented their recovery program under the paternalistic tutelage of the two postwar superpowers, which meant East Germany and Poland were under Soviet hegemony. Modernization was given different directions: while in the West the liberal modernization project was taken up again, in the East the Soviet collectivist modernization project was adopted.

The general historical development from 1945 to 1990 is well known and has been aptly told for East Germany by, among others, Dierk Hoffmann (2013), Jörg Roesler (2020), Klaus Schröder (2013), André Steiner (2004), and Hermann Weber (2012). For Poland, we can refer to Maciej Bałtowski (2009), Włodzimierz Borodziej (2010), Jerzy Kochanowski (2010), Wojciech Morawski (2011), Wojciech Roszkowski (2003), and Andrzej Leon Sowa (2011). The postwar period of both countries encompasses two transformations, the transformation into a people's democracy and a Soviet-type economy on the basis of Marxism-Leninism and the post-socialist transformation into a liberal democracy and capitalist market economy. In both countries, the old system bequeathed legacies to the new one, which did not always enrich the legatee.

This book is not about the macro lines of history. Rather, we try to shed light upon meso and micro issues to put flesh on the bare bones of the grand narrative. Why investigate the nooks of East German and Polish science, politics, and economics more than 30 years after the event? *Ex post* it is evident that state socialism has failed as a politico-economic system. This was not obvious at the beginning. System failure as a macro phenomenon manifests itself on the meso and micro levels in behavior, institutional

U. Ludwig

Halle Institute for Economic Research, Halle (Saale), Germany
e-mail: udo.ludwig@iwh-halle.de

H.-J. Wagener (✉)

Emeritus Faculty of Economics, European University Viadrina,
Frankfurt (Oder), Germany
e-mail: mail@hjewagener.de

constructs, material results, views, memories, and so forth. We want to find out “how did it come about?” Secondly, what went wrong, where was the path into prosperity and stability left, when was the point of no return (or reform) passed, and why? And thirdly, which remnants of the socialist system influenced the establishment of a new order? To answer such questions, particular aspects of growth and development, as well as individual elements of the system, will provide relevant information.

In 1990, a transformation of the political and economic system set in. Both countries have opted for an incisive change—shock therapy as it was called. In the case of East Germany, it was radical: rapid privatization or closure of state-owned firms and the immediate incorporation into the West German state and its socioeconomic system and hence into the European Union. Even if it was aided and cushioned by the western part of the reunified country, path dependency makes for the temporary persistence of old attitudes, habits, and practices. Necessarily, Polish transformation took a different path. It also came as a shock, but in particular privatization proceeded more gradually. Shortcomings and successes of the transformation cannot only be ascribed to the actual reform measures but have their roots in the conditions created by the socialist system. Here, significant differences between the two socialist countries can be identified.

The main focus of this book lies on the German Democratic Republic (GDR). To analyze the social development of one socialist country in isolation involves certain dangers: disregard of the wider context, ascribing typical traits to the socialist system in general and not to national idiosyncrasies, accepting the chosen path as being without alternative. The example of Poland serves as a palliative against one-sidedness and overdrawn judgments. Both societies were subject to a similar politico-economic system based on a Marxist-Leninist ideology and Soviet practice. But culture and tradition were different despite the geographic proximity. So, we may expect different attitudes and behaviors resulting in different outcomes and, next to common problems, some different stumbling blocks for development and growth.

2 MODERNIZATION

What is modern? This is the crucial question of the project. There is a large body of modernization theories and critical analyses, which have experienced a revival in the context of post-socialist transformation (Pollack 2008; Kollmorgen 2019). We cannot expect consensus on *the* theory.

Therefore, one should carefully distinguish between the concept of modernization and modernization theory. A simple version of the theory in American political science stems from Lipset (1959). It hypothesizes: the greater the welfare, the greater the chance of sustained democracy in a country. For democratic political institutions require, among other things, high levels of education, a well-developed communication infrastructure, a sizeable middle class, and social mobility, all of which develop in parallel with welfare. Empirical research has not contradicted the hypothesis, even if there are cases where economic growth resulted in long-lasting authoritarianism. Liberal democracy is seen as the highest stage of social development. The view culminated in Fukuyama's (1989) "End of History" propagating "the universalization of Western liberal democracy as the final form of human government" (ibid., 4). Obviously, communists, for whom communism is the final stage of historical development, will disagree.

Teleological visions cannot be of much help in analyzing the achievements and deficiencies of systems that deliberately chose alternative modernization paths. If modern society is defined as entailing liberal democracy, competitive markets, rule of law, protection of private property, civil society, and individualism, then it follows logically: "Fascism, state socialism, and fundamentalism, which according to Eisenstadt (2000 [...]) belong to modernity, are not modern" (Pollack 2008, 51). Yet, in its beginning, Soviet communism was seen, although not generally hailed, as a major step into modernity. Excluding it and its offsprings in Central and Eastern Europe from the history of twentieth-century modernization does not make much sense, even if, in the end, many of these societies have opted for a transition to the Western liberal variety.

Modernity is not just a form of government. It results from a long-term historical process of transforming static traditional communities into dynamic societies. Economic change, industrialization (Marx), cultural change, and religious views (Weber) have been suggested to be the main drivers of modernization. The process is aiming at democratization, emancipation, demographic development, urbanization, social mobility, structural change proceeding from industrialization to post-industrialization, scientific progress and innovation, health, welfare, economic growth, mass education, mass consumption, and so forth. It evidently is a process of co-evolution, and it is open-end with no definite state of society as ultimate outcome. The aims are universally valid and have been pursued by all modern societies. However, what an American scholar understands by democracy and what a GDR Politburo member understood by it would

not have been the same. By its name, the GDR was a democratic state. But at the same time, it was ruled by the dictatorship of the proletariat, that is, the working class, and its Marxist-Leninist party (see *Verfassung* 1974, Art. 1) and not by the rule of law. In short, the concrete interpretation of the general aims will be specific to a given society.

Liberal and collectivist societies differ most conspicuously in the route by which they try to implement the aims. For the twentieth century, we may very broadly discern a liberal route and a collectivist route, with Soviet-type state socialism as the most prominent representative of the latter. The distinctive properties of the routes are ideological—liberalism versus Marxism-Leninism or individualism versus collectivism—and institutional—private initiative and competition in economics and politics versus centralism, administrative planning, and the primacy of politics. Forty years on different routes may have led to different visions, values, and attitudes. In the process of transformation, many East German intellectuals were clinging to a vision of collectivist modernization, now purged of its authoritarian traits. This famously manifested in the complaint of former dissident Bärbel Bohley—“Wir haben Gerechtigkeit erwartet, bekommen haben wir den Rechtsstaat” (we expected justice, we got the rule of law) (von Münch 1994)—putting an expected virtue of *Gemeinschaft* over a key feature of modern *Gesellschaft*.

How can we assess the performance of different social systems? It seems plausible to use the development aims of the given system, which in the case of state socialism contained all the items enlisted above. But where shortcomings or failures are noticed, only a theory can hint at possible causes. Can modernization theory provide answers? Probably not if it is oriented toward Western democracy only. A suitable theory must address conditions which, across systems, are conducive to the attainment of specific aims. Take the example of economic growth. There are critical voices, but growth has been accepted by all capitalist and socialist countries as a desirable objective. Its material composition may be quite different according to idiosyncratic preferences, but growth theory identifies the influencing factors. Modern growth theory also contains institutional factors—thus, institutions matter (North 1994). If the GDR systematically hampers or blocks institutions like economic competition or global scientific exchange, this may be identified as a modernization barrier.

Politics, economics, and science, the core functional spheres of modern society, will flourish under the whip of competition. Even Marx and Engels have stressed the importance of rivalry for accumulation and technical

progress. Socialist central planning, on the other hand, suppressed this motive force for the most part. Competition as discovery procedure (Hayek 2002 [1968]) submits each innovation—scientific or economic—to a verification review, which decides about success or failure. Party conferences or Politburo decisions are weak substitutes. Modernization means learning, changing, exploring new combinations, and adapting to rapidly altering situations. Concentrating all decision-making authority at the top of a hierarchy will hardly do the job. The apparent modernization success of the Soviet Union in the first decades of its existence was a process of catching-up, for which central planning may have been instrumental.

The political and economic situation of Russia in the 1920s, when taking the authoritarian course, was fundamentally different from the situation in East Germany after the war. Russia's backwardness and international isolation made industrialization and technological modernization paramount for survival, as Stalin asserted. Gerschenkron (1962) hypothesized that in such a situation, the state can substitute for lacking entrepreneurship, savings, and financial infrastructure in order to provoke a rapid transformation of the economy. Despite war damages, East Germany was a developed industrial country whose modernization requirements were directed toward continuous structural change, research and development, innovation, and integration into the world market, that is, activities that call for entrepreneurial initiative as well as risk-taking and can only poorly be replaced by state bureaucracy. The Polish position was more comparable to the Russian than to the German situation. Poland was in many respects a backward country, and Polish politics were aware of it. Already in the 1930s, they turned to state planning to improve the situation.

Wasn't state socialism doomed to fail right from the start? This is an ex post rationalization. Indeed, Mises, Hayek, and the neo-Austrians in their wake were adamant about the impossibility of efficient economic calculation under socialism. The neoclassical mainstream, on the other hand, has stressed the theoretical equivalence of optimal planning and market equilibrium. During World War I, the idea of central planning, even in kind, was ventured theoretically by the Austrian economist and member of the Vienna Circle Otto Neurath and practically by Walther Rathenau. After the war, Mises' impossibility theorem triggered a lively debate on socialist calculation which, together with the Polish economist Oskar Lange (and Mises), crossed the Atlantic in the 1930s to challenge the Mises view. In these years, Germany, as well as Poland, set up four-year plans concentrating on investment—Germany to prepare for the war and Poland to cope

with the great crisis and its backwardness. After the war, socialism looked like a viable alternative to the utterly discredited capitalist system (Schumpeter 1950). New models of central planning were tried out: in the Netherlands by Tinbergen's *Centraal Planbureau* in The Hague, in France by *planification indicative*, and in Great Britain by the nationalization of coal and steel. In short, the idea of central planning was by no means unanimously dismissed theoretically and practically. Nothing of this was discussed in the GDR, where the Soviet-type system was the only option.

Ex post (or rather en route), it has become quite clear that the socialist path is not a freeway to modernity. Deficiencies were obstacles for successful modernization and resulted in retarded growth and development. This does not deny important achievements, particularly in those fields which can be effectively promoted by government policy, like education, health care, and income distribution.

3 SOCIALIST ACHIEVEMENTS IN MODERNIZATION

The roadblocks on the East German modernization path are obvious. They were caused by historical circumstances and systemic features. The question is whether there were any fast lanes. They are hard to identify unambiguously. According to its official self-image, the collectivist modernization project was in its entirety the only fast lane to modernity and should, within a short time, surpass the doomed bourgeois capitalist world. Overall, things turned out less propitious. However, certain elements of the collectivist project must be analyzed as potential or factual progressive steps—for example, large-scale farming and agricultural cooperatives. Of course, the immediate result was not overwhelming, but once central planning by state and party was abolished, East German agriculture, with still a sizeable share of large-scale cooperatives, proved to be a competitive modern sector of the economy.

We may call this phenomenon a “deferred success pattern”: an inherently productive measure does not yield the expected results because of systemic barriers, but it may display its full potential after the system change. A spectacular example is microelectronics in Dresden. In 1977, the Central Committee approved a program to establish this industry in the GDR, which was carried out at enormous investment costs. It failed to catch up with the rapid development in the West and to match the sharply falling prices in the world market (Marschall 2022 [1990]). Today,

Dresden is the largest microelectronics location in Europe, benefiting from the research capacity of its university and the quality of the local labor force created originally in the socialist period. Another example is the gradual concession to set up small-scale private enterprises and the liberal travel policy in Poland since the 1970s. They could not prevent the downturn of the Polish economy in the 1980s, but after the very short Polish transition crisis, they contributed substantially to the establishment of a market economy and to recovery and growth (see Chaps. 7 and 11).

Social policy is generally counted among the achievements of East Germany, in particular, the constitutionally guaranteed right to work. The subliminal or open threat of unemployment was unknown. Socialist men should react to this accomplishment by enthusiastically supplying labor according to their abilities, but they did not do so spontaneously. The apparent incentive problem was to be solved by payment according to performance, which was implemented by the old Taylorist device of piece rates. Their increase caused the uprising in June 1953. The eminent East German economist Fritz Behrens (1966, 10) formulated the crucial question of the socialist model: “How is material interest possible on the basis of the social ownership of the means of production?” It implies behavioral problems of the management as well as the workforce, which were not sufficiently analyzed in empirical research. Honecker’s 1971 policy switch to the so-called unity of economic and social policy, that is, a balance between investment and consumption, simply assumed that workers would work harder if their real income was rising and thus make possible sufficiently high rates of investment in productive capacity. In fact, those rates were falling during the 1970s and 1980s to keep up consumption growth and residential construction and avoid riots as had happened in Poland.

The Polish example reveals serious difficulties with the right to a workplace. Unemployment was shifted from the labor market, which did not exist anymore, to the state firms where it persisted in a hidden form. For the 1980s, it has been estimated to have been almost 30 percent in industry (Chumiński 2010, 112). This sheds a special light on post-transition unemployment, when it was shifted back again from the firms to the labor market. A second effect was the deterioration of the Polish work ethic. It contrasted quite unfavorably to the East German work ethic, which—according to Polish perception—was grounded in the qualification of the worker and his position in society (Mazurek 2005, 286–7).

The right to a workplace was only the first step of socialist social policy. The next step was egalitarianism. The conflict with the performance principle had already been highlighted by Stalin in the 1930s. According to GDR sociologist Wolfgang Engler (1999, 201), the East German society was a workers' society (*arbeiterliche Gesellschaft*): "Since society was a workers' society whose welfare presupposed a high degree of physical effort, it perceived itself best in the figure of the worker, most suitably of the hard labor performing man." Embedded in a stable (and static) social environment, the worker enjoyed an undisturbed way of life with social recognition, solidarity, and freedom from material hardship. However, the actual pattern of values and behavior prevailing in daily life needed some exhortation to meet the expectations of what the party understood by "the socialist man." The hard labor performing man was anyhow a dying species in the modern post-industrial world, which needed other role models. Egalitarianism and the right to work were socialist achievements that could hardly be transferred to competitive markets in the transition but made this change not particularly popular among the East Germans.

And the women? In an economy that was haunted by low productivity growth and chronic labor shortage, they were needed in production. The high rates of female labor participation and the legal, social, and educational provisions enabling them are often mentioned as major modernization achievements. Indeed, these developments, which East German policy supported resolutely, corresponded to a secular modernization trend. By contrast, in Catholic Poland, where socialism propagated similar trends, the church defended traditional attitudes with some success (Kleinmann 2022).

Next to the hard labor performing worker, the independent, self-confident woman was the second exemplary role model of East German society, and this with a much brighter prospect than the former. Nevertheless, the state-socialist society was patriarchal: the share of women in top political and economic positions remained negligible. This changed gradually after the fall of the Berlin Wall, which may be seen as further instance of the deferred success pattern (see Chap. 9). Social provisions like nationwide institutional childcare were soon taken over by the West. Yet, the necessary transformation of male behavior took place rather sluggishly, and policy was unwilling or unable to close the notorious wage gap between men and women, which persisted also in the GDR. Female labor participation had been higher in predominantly protestant East Germany already in the pre-socialist period to which level it more or less fell back

after reunification (Wyrwich 2021). Like the peak in the socialist period, this may have been due to demand, which dropped dramatically during the phase of extreme unemployment in early transformation.

While public care and education in early childhood in East Germany was well ahead of the West, the rest of the educational system showed specific traits due to different policy orientations. In general, the GDR attached great importance to practical abilities of pupils and students. This manifested institutionally in the general polytechnical school (*Allgemeinbildende Polytechnische Oberschule*), covering the first ten years of primary and secondary education. In addition, since the 1970s, it showed in the restricted admission to university. So, the share of the age group 20–25 years in education and the output of university graduates were noticeably lower in the East than in the West. Preference lay in relatively short vocational and polytechnic training. This was the result of the attempt to adjust the demand and supply structure of the educational system to the cost-minimizing qualification requirements of the economy (Ludwig et al. 1972, 195–201). A liberal system leaves this adjustment, for a great part, to individual decisions and the market. The share of unskilled workers in West Germany, on the other hand, was significantly higher than the East German level. The GDR successfully included all social strata into education. The effect of this policy on labor productivity is hard to measure. However, some doubts about the rationality of the political preference for vocational training were formulated, since economic productivity seems to have been supported more by university graduates than by qualified specialists (see Chap. 3).

The notorious productivity gap compared with West Germany—amounting in the end to more than 60 percent—had its causes in the mentioned roadblocks, among which education was perhaps the least serious. This is even more obvious for Poland which, as a relative backward country, had to fight illiteracy first before it could develop the labor force—but it did so successfully. Thus, the gap between the traditionally highly developed academic sphere and the rest of the population was narrowed considerably. Paradoxically, in Poland, it seems the system's achievements are those features that mitigated detrimental effects of the Soviet-type model of socialism: reversal of collectivization, support of the church as alternative power center, the establishment of an independent trade union (*Solidarność*), and keeping the country economically and intellectually open to the West.

4 THE DRIVERS OF WELFARE GROWTH: DIVISION OF LABOR, ACCUMULATION, AND INNOVATION

As we saw, modernization has evolved in conjunction with economic change and cultural change. Behind both stands the accumulation of knowledge as primary cause. So, technology and science are at the center of development. The modernization success of any society depends on its ability to foster technology and science and to transfer the results into the spheres of production organization and productive attitudes. Three eminent economists, Adam Smith, Karl Marx, and Joseph Schumpeter, have focused attention on the three drivers of productivity and welfare growth: division of labor, accumulation, and innovation.

The founding text of economics, Adam Smith's 1776 *Wealth of Nations*, has identified specialization and the division of labor as major sources of welfare growth. This is valid within the economic system due to economies of scale and comparative advantage. It has materialized over the centuries in an in-depth segmentation of productive units and specialization of professions and trades. This is also valid for the social system as a whole, where the basic social functions became differentiated and formed more or less autonomous subsystems: politics, economics, law, science, art, health, education, and so forth. And this is valid on the global scale: individual countries engage in the international division of labor and use their comparative advantage to realize gains from trade. All these developments are aspects of modernization. To impede these secular trends by deliberate or systemic barriers implies welfare losses. While proclaiming its profound modernization intentions, Soviet-type state socialism tended to erect such barriers.

“Communism is a program to reverse social differentiation and to overcome the fragmentation of the individual's way of living, two tendencies characteristic of modernity” (Lepsius 1995, 359). The intention is comprehensible in view of detrimental consequences of modernization: a lack of transparency, social isolation, alienation, and anomy. On the other hand, the horizontal functional differentiation into more or less autonomous spheres enhances productivity and innovation in these spheres and facilitates their management. They follow their own principles and values and use their own communication media. By contrast, Marxism-Leninism insisted on the primacy of politics. What does this actually mean?—seizure and unmitigated preservation of power, the Leninist ingredient of Marxism-Leninism. Functional elites had to be subordinated to the power

elite or the dictatorship of the proletariat, that is, the rule of the party leaders. This was managed by the *nomenklatura* system, that is, the allocation of top positions in all social spheres by the party leadership. “What happened was an enforced process of de-differentiation which deprived the economic, scientific, legal, or cultural subsystems of their independence and suspended their specific rationality criteria” (Meuschel 1992, 10). Functional efficiency was a second-order objective.

The spontaneous development of a differentiated firm structure with specialized medium and small firms was blocked by the general preference for large units, which, in the 1970s, escalated throughout the Soviet empire with the formation of combines. Such a firm structure alleviated the task of the central planner and shortened the shaky supply chains, but it resulted in monopolies slowing down structural and technical change. The division of labor in the industry sector was continually reduced. Combines tended to autarky. The depth of production increased instead of being reduced. Supply problems stimulated firms to produce needed inputs and repair services in-house. Concentration of production in a single combine hampered product diversification with repercussions for international trade where East German products encountered highly diversified foreign competitors. Intra-industry trade was little developed in the socialist world. Innovation could not penetrate production (see Chaps. 3, 4, and 5).

The international division of labor remained a notorious problem for Soviet-type economies. In a market economy, comparative advantage is revealed *ex post* by the activities of independent individual enterprises. In a centrally planned economy, it must be determined in advance and coordinated with the trade partners, which, in the case of Eastern Europe, were centrally planned economies themselves. Pricing is a serious difficulty in this context, with the result that comparative advantage is not known (see Chap. 6). While this sounds very much like the Mises argument about the impossibility of economic calculation under socialism, it testifies only to the incapacity of the state-socialist planners to grasp the problem and to cope with it adequately as some scholars had proposed. The closely linked propensity to autarky was fatal for the GDR and Poland. Like other economies of small and medium size, for technical progress in industry, they depended to a sizeable extent on foreign innovations, blueprint or embodied, to which they had limited access for financial as well as political reasons (Flade 2022).

Karl Marx had stressed capital accumulation as main source of economic growth: “Accumulate, accumulate! That is Moses and the prophets!” (Marx 1867, ch. 24). For him, its effects coexisted rather paradoxically with the immiseration of the proletariat under capitalism. In the Soviet Union, Stalin had followed the call realizing that rapid catching-up industrialization was crucial for the survival of the system. He pursued a policy of extremely high rates of accumulation and unbalanced growth favoring heavy industry. This model was taken over by his East European satellites in the first decennia of communist rule. Unbalanced growth remained characteristic of socialist economic policy. Typical for the GDR were the investment rushes in chemical industry in the late 1950s and 1960s, as well as in microelectronics in the late 1970s and 1980s—concentrating huge investments in these sectors and depriving less privileged sectors of urgently needed funds (see Chap. 5).

On the 24th Party Congress of the CPSU in 1971, Brezhnev reversed the policy of building socialism by favoring investment over consumption. In the GDR and Poland, new party leaders had recently been appointed. Erich Honecker and Edward Gierek followed immediately the Soviet lead. The 8th Party Congress of the East German Sozialistische Einheitspartei Deutschlands, the leading communist party (SED) propagated the new main line (*Hauptaufgabe*) of policy: “raising the material and cultural standard of life of the population based on a high pace of development of socialist production, the increase of efficiency of scientific-technical progress, and the growth of labor productivity” (Protokoll 1971, S. 61–62). This was a verbatim quote of the main line for the ninth Soviet Five-Year Plan (KPdSU 1971). The time of extensive growth was over. Intensive growth became the theoretical and practical problem of the next period.

The accession to power of Honecker and Gierek was initially met with great hopes for positive policy changes. In the case of East Germany, however, the more consumer-friendly policy was accompanied by a return to the traditional Stalinist planning methods, which in the end thwarted progress and growth. The new policy of “unity of economic and social policy” was backed by the assumption that people would work harder if they enjoyed higher consumption and better housing, allowing to keep up high rates of investment: economic growth depends directly on the growth of welfare, as Fritz Behrens (1966) had hypothesized. The crucial problem is the optimal relation of accumulation and consumption of which the East German planners had no empirically confirmed idea. In Poland, the eminent economist Michał Kalecki (1993 [1963]) had developed a sound

theory of growth under socialism. Already in the late 1950s, he had applied his insights in the planning commission, drafting a long-term plan for 1961–75. The party leaders did not heed his proposals but criticized them as too cautious. Planning optimism and overdrawn plans were notorious under state socialism. Kalecki left the planning commission frustrated in 1964 (Wagener et al. 2021, 215). His theories were not translated or discussed in the GDR.

For a time, it looked as if both accumulation and consumption could simultaneously be promoted at a high pace. Both countries took advantage of the favorable international credit conditions in order to import Western technology and also consumer goods. Both expected to be able to service the debts with higher and more qualified exports in due time. It did not work out—interest rates rose in the international credit markets, and both countries struggled with serious debt problems from the late 1970s onward. Increased efforts in export production became necessary, which narrowed the scope for accumulation.

The third source of welfare growth is innovation—Joseph Schumpeter’s contribution to growth theory. By innovation, we understand the application of new ideas in production yielding new products, production processes, and organizational change. Both concepts, growth and innovation, were treated in East German economics under different headings and in different contexts. A specialized growth theory, as, for instance, elaborated by Kalecki, was considered inappropriate for socialist economics. It had to be incorporated into the theory of extended reproduction. The word innovation entered East German economic terminology rather late. The economic encyclopedia of 1978–80 (*Ökonomisches Lexikon 1978–1980*) did not contain such a lemma. The core issue instead was scientific-technical revolution and progress. As such, it was treated as a highly relevant factor for the intensification of social reproduction. The crucial problem of innovation, the transfer of new ideas from science to production, was duly recognized (Heinrichs and Maier 1976, 223–90). What is missing in this context is the role of the firm and the entrepreneur—of course, since there are no entrepreneurs in socialism—in detecting new products, new processes, new markets, or new organizational constructs. This whole process was designed by central planning.

Scientific-technical progress implies innovation, though not only new products, production processes, and productive organization, but also a specific economic and social environment conducive to it. In Czechoslovakia, a large interdisciplinary research team had been set up in

the first half of the 1960s to analyze these implications, which resulted in the so-called Richta-report “Civilization at the Crossroads” (Richta 1966; not translated in the GDR). It reflected the reform thinking of the Prague spring. The GDR party leaders were heavily critical of market-oriented reforms, and any initiative into the same direction, political or scientific, was rejected as revisionist. The 1968 events marked the incisive turning point of East German modernization endeavors and rang the bell for the cautious GDR reform of 1963. Although 1968 was a year of crisis also in Poland, “normalization” had not the same historical systemic significance there as in the two highly industrialized socialist countries, Czechoslovakia and GDR.

Technological progress is, in the first instance, a question of research and development. Technical and engineering know-how had a long pre-war tradition, especially in the southern regions of East Germany with numerous small and medium-sized industrial enterprises. The GDR benefited from these capacities and developed them further in its educational system. It manifested in comprehensive invention activities that, however, only sparsely trickled down into the actual production process, chiefly due to organizational rigidities. The technological lags of the East German economy and the resulting low labor productivity are widely known. They derive from deprecated capital assets, structural deficits, retarded reinvestment, and slow innovation. Not all of that can be ascribed to inefficient science and engineering, which also suffered from capital scarcity. The main blockades happened in the central determination of research priorities and their time-consuming planning and execution, in a restricted flow of knowledge and excessive secrecy, and in limited incentives for the firms to innovate. So, innovation weakness became one of the major stumbling blocks of East German modernization and growth (see Chaps. 3 and 4).

Research and development on the level of the firm had been treated extensively in a handbook in 1976 (Autorenkollektiv 1976). The first East German textbook explicitly on innovation appeared only in 1988 (Haustein et al. 1988). Its main author, Heinz-Dieter Haustein, together with his colleague Harry Maier, had spent a research stay at the International Institute for Applied Systems Analysis (IIASA) at Laxenburg near Vienna, where they occupied themselves intensively with the management of technological innovation. It ultimately resulted not only in the textbook but also in an English language monograph (Haustein and Maier 1985), a rare achievement for East German economics.

The textbook made clear: “The potential of the new can only be developed and exploited by controlling the time factor [...] This requires a high resource flexibility and venturesome decisions” (Haustein et al. 1988, 62–3). Resource flexibility and risk-taking are endemic shortcomings of a centrally planned economy characterized by shortage. Each member of the Politburo, each minister, each director of a firm, or combine is eager to make sure not to suffer losses in their resource allocation for the next plan period. Where plan fulfillment has top priority, the risks of uncertain decisions will be wisely avoided, and necessary changes postponed as far as possible. For, “where one innovates, the efficiency potential of the prevailing technique will be undermined” (ibid.)—that is, what Schumpeter had called creative destruction as a precondition of innovation.

5 THE AGENTS OF INNOVATION

Who is driving innovation? The entrepreneur is the obvious answer since Schumpeter. The GDR, however, did not know the entrepreneur. It knew only the capitalist as a member of the exploiting class, a figure of the past. His field of activity, the independent enterprise, did not exist either. Production took place in publicly owned firms (*volkseigene Betriebe*) or, after the merger wave of the 1970s, in larger corporations (*Kombinate*). They were elements in a hierarchically organized system of central planning.

Entrepreneurship can be analyzed with Pierre Bourdieu’s concept of habitus (Schwarz 2022). According to Bourdieu (2002 [1984], 133–5), habitus is a form of (human) capital, “a kind of transformation machine which makes that we ‘reproduce’ the social conditions of our own production, yet in a relatively unpredictable way which cannot be transmitted by a simple mechanism from the knowledge of the conditions of production to the knowledge of the products.” Habitus is acquired, and it persists over a long period of time (hysteresis). Schumpeter could not have agreed more.

It is a sad fact that the GDR lost entrepreneurial talent in great numbers by West migration. Between 1945 and 1990, about 4 million people (out of 18.8 million in 1949) moved or fled to West Germany, the majority before the construction of the Berlin Wall, but in smaller numbers also after 1961. Private enterprise was eradicated in the GDR in three waves: first, by the immediate postwar nationalizations, then by full collectivization of agriculture up to 1960, and, finally, after Honecker’s access to

power, by the nationalization of the remaining 11,000 family firms in 1972. Private property of industrial firms became unlawful according to the constitution of 1974. What was left was a small bracket of individual handicraft establishments. Entrepreneurial spirit had hardly any scope for action under the GDR regime, and hence, very little could be transferred in transformation. In Poland, the situation was somewhat better. Forced collectivization was stopped in 1956, and exactly when the GDR abolished private or semiprivate firms in the early 1970s, Poland made first concessions to such firms. So, it is not surprising that Polish transformation and recovery was based on small-scale privatization and initiative from below (see Chaps. 7, 10, and 12).

A second group of innovation agents in any economic system are managers. In the first years of the GDR, the Stalinist economy was conceived as a uniform hierarchical system in which the firms were strictly subordinated to the higher authorities. Rational central planning reduced firm management to purely executive tasks without strategic decision-making power. There was no need for management science or business economics, which basically disappeared as a subject from the curricula (Wagener et al. 2021, 315–29).

It does not imply that socialist managers did not need particular skills. They lay, however, in a different domain due to the different character of a socialist planned economy. A market economy is demand-constrained (Kornai 1979). Its managers must be market-, cost-, and innovation-oriented. For the financing of their investments, they have to convince the capital market and the banks of the viability and profitability of their business. A socialist planned economy is supply- or resource-constrained. Its managers have to deal with the planning bureaucracy to obtain a feasible production plan and an adequate investment plan, the financing of which was the planner's concern. And they have to be on good speaking terms with their suppliers, labor force, and the party to secure the continuous flow of materials and cooperation. Problems with timely and appropriate delivery were one of the reasons for integrating individual firms into rather autarkic *Kombinate*, thereby reducing the diversity of the range of firms.

With the reform of 1963, it became clear that management and control of the firms was not only a question of party discipline and of technical knowledge. Traditionally, top management in Germany has been in the hands of technical personnel with a degree in natural science or engineering. This was also the case in the GDR. In the wake of the reform, the Central Institute for Socialist Economic Leadership at the Central

Committee of the Socialist Party (*Zentralinstitut für Sozialistische Wirtschaftsführung beim ZK der SED*) was set up in 1965, which might be called the business school of the GDR. Its director, Helmut Koziolok, was one of the (politically) highest ranking economists of the GDR. Socialist management science (*Leitungswissenschaft*) was complemented by Western approaches, which was legitimized by the authority of the Soviet academician Dzhermen Gvishiani. He was one of the founding fathers of the IIASA at Laxenburg, and his survey of the state of the art had been translated into German (Gvišiani 1974). Higher management, in particular the directors of the larger corporations (*Kombinate*), remained responsible for the smooth execution of the plan and stood under the supervision of the central planner. But they gained in competence and influence and, thus, were able to lead independent enterprises after the reunification if they got the opportunity.

The third group of innovation agents, obviously, are the central planners. The group consisted of the hierarchical superiors of the firms, the planning commission, and the ministries, controlled by the party, that is, by the secretaries of the central committee and the Politburo. The personnel of these institutions were recruited from the universities and high schools, in particular the High School of Economics. In addition, the educational institutes of the party installed at the central committee turned out elite personnel: the Academy for Social Sciences and the Party High School together with the mentioned business school. The characteristic of these institutes was their double nature: they had to keep a balance between academic aspirations and loyalty to the party and its ideology. Since the higher positions of bureaucracy were subjected to the *nomenklatura* system, ideological and political conformity together with a certain *esprit de corps* was guaranteed. The upright party soldier was, next to the hard labor performing worker and the self-confident woman, the third exemplary role model of the system. Decision-making in this huge bureaucratic apparatus took place according to strict rules and was very time-consuming. The main success indicator of socialist directive planning on all its levels was plan fulfillment. Its specific form had negative consequences for flexibility and was detrimental for risky and time-sensitive innovation decisions (see Chap. 5).

Plan fulfillment is universally the most widely used success criterion. If a top soccer team does not reach the Champions League, its coach is in danger of losing his job. If a capitalist enterprise does not meet its profit expectations, its rating and stock market value will go down. So, what is

wrong with plan fulfillment in the socialist context? Very simply put: the plan. Soviet-type economies formulated annual plans in terms of numerous obligatory plan indicators (control figures). Number and scope of the indicators were a recurrent issue of reform debates since they disrupted the consistency of the plan. A single synthetic indicator like profits would have presupposed, however, independently operating enterprises that were deemed a threat to the power of the party. Traditionally, the planner preferred the fulfillment of the plan in physical units as chief indicator, at least for the key economic activities. This leaves little room for the firms to optimize their present and future operations and makes them inert and stagnant.

The fourth group of innovation agents comprises those on whom the introduction of new products and new processes depends: inventors, R&D staff, scientists. These people are intellectuals and, hence, suspect to the party. But as scientific core of the innovation system, they were indispensable in the workers' and peasants' state. Research was largely centralized in the institutes of the Academies of Sciences. Restricting our analysis to science and technology (the social sciences were treated differently; see Wagener et al. 2021), it is obvious that costly basic research everywhere needs some form of state planning and state funding. This was also the case in the socialist countries with, perhaps, a little more formal central planning and control. But in a competitive market economy, some innovation takes place in small steps in medium and small enterprises and startups, a segment missing in the socialist system.

On the lower level, East German firms and combines had well-staffed R&D departments with skilled engineers. The human capital supply of the GDR economy appears to have been satisfactory. The transfer of new ideas to the planner and then to production seems, however, to have been sluggish. It is remarkable that individual intellectual property rights were protected—even though restrictedly. Inventions made in state-owned firms or state-financed institutions were granted a so-called economic patent (*Wirtschaftspatent*). The right to use it or dispose of it belonged to the state, while usufruct was divided between the state and the inventor, who received an inventor's compensation (Ökonomisches Lexikon A-G, 1978, 561; Hipp et al. 2022) (see Chap. 3).

Science always has been an international enterprise. Contacts with foreign peers, integration into the international publication and congress circuit, research residencies, joint teams—all this is conducive to scientific progress. A major shortcoming of the GDR science system was its

comparative isolation (see Chap. 8). The most obvious partner would have been West Germany, which for a long time did not recognize the East German state, and which, conversely, was the most denigrated neighbor, the imperialist enemy. Like Hungary, Poland could afford a much more liberal attitude. Travel restrictions were less severe, exchange opportunities were widely used, and even foreign financial support (by the Ford Foundation or the Humboldt Foundation, for instance) was gladly accepted (see Chap. 11). Cooperation within the Eastern block was formally promoted but remained tenuous. Where the GDR had the most intense interest, namely in computer science and microelectronics, the support of the leading Soviets was reluctant, holding back valuable information (Flade 2022).

This raises the question of what economists, or social science in general, could contribute to the smooth functioning of the economy. One may anticipate high aspirations since the collectivist road to modernity was paved by “scientific communism” with rationality claims and an unlimited planning optimism. However, ideological barriers impeded the development of a practically relevant social science. East German scholars were not expected to engage in critical analysis of systemic deficiencies and sources of productivity lags. This was different in Poland. Despite all ideological lip service, economics produced respectable contributions and gained international reputation, thanks to the eminent Oskar Lange, Michał Kalecki, Edward Lipiński, Aleksy Wakar, and their pupils (Wagener et al. 2021). These achievements stood in stark contrast to the finally poor performance of the Polish economy. In the GDR, the situation was rather the other way around.

Włodzimierz Brus (1961), for instance, could publish his “Functional Problems of a Socialist Economy.” A translation did not appear in the GDR but appeared only in West Germany. A similar fate befell Ota Šik’s (1967 [1965]) “Plan and Market Under Socialism.” Western economic theory was rigidly dismissed by East German scholars: “On the whole, [...] the sweeping devaluation of findings of non-Marxist scholars as apologetics was a fatal mistake of established GDR science,” as two East German economists admitted at the very end (Becker and Luft 1990, 1434).

Similar ideological barriers were less relevant for natural, technical, and medical sciences. This does not imply that these could flourish without obstructions. Over the whole period, science was confronted with ubiquitous material shortages and the lack of foreign exchange. This caused insufficient capital structures, equipment, acquisition of foreign literature,

and restricted opportunities to travel abroad. In addition to tight financial means, political constraints existed, that is, external measures (Cold War) and, above all, internal measures. Political reliability became an important criterion for entering the ranks of *nomenklatura*, which distributed the higher positions also in science. All contacts with Western institutions and colleagues were strictly controlled. State security was a constant observer of science. Publications were classified and, if intended for foreign journals, had to be authorized by the superiors. Integration into the international scientific community was not prohibited but seriously hampered (see Chap. 8). Scholars can react in different ways: from the triad exit, voice, and loyalty (Hirschman 1970), exit was barred in 1961 by the Berlin Wall, and voice was choked by recurrent disciplinary measures, like the revisionism campaign in 1956–57 or the Havemann affair 1964–66. So, only loyalty remained as default option, the sincerity of which is hard to assess. Many scholars reacted with frustration and retreated into politically neutral backwaters.

The transformation in 1990 implied by its very nature a dramatic change of elites (see Chap. 9). The existing innovation system was destroyed with partly drastic consequences for the participating agents and, hence, output (von Tunzelmann et al. 2010). While large parts of the industrial structures turned out to be outdated and unprofitable, this was not the case for the labor force. To put it to productive use, however, large capital investment and a new organizational environment became necessary. Alternatively, labor migrated to the West.

The unification treaty of 1990 spoke euphemistically of “fitting in science and research ... into the joint research structure of the Federal Republic of Germany” (Einigungsvertrag 1990 Article 38.1). Actually, this meant dissolving the GDR Academies of Sciences with their about 30,000 employees, evaluating the scientific productivity and political past of these people and discharging them, where deemed appropriate (*Abwicklung*). The rest was reorganized in independent institutes, universities, and West German research organizations like *Max-Planck-Gesellschaft* or *Fraunhofer-Gesellschaft*. Scholars who stayed in their jobs benefited greatly from the new freedom and could participate unhampered in the international scientific community (see Chap. 8). Research and development in industry was affected even more. Rapid privatization led to the closedown of many establishments. In the firms that were chosen for privatization, cost reduction efforts affected mainly the R&D and

social care departments. In Poland, these processes took place at a slower pace, since large-scale privatization was approached more gradually.

The immediate separation of state and economy made the group of central planners redundant. The State Planning Commission disappeared, the ministries were integrated into Western ministries or closed, and the party apparatus was dissolved. At least during the transitional period, the incorporation of the GDR into the Federal Republic was accompanied by the transfer of higher staff into administration, the judicial system, and other sectors that were less developed in a socialist system, like banking, insurance, and accounting. The fate of the managers depended, of course, on the fate of the firms and combines. This was determined in the first instance by the *Treuhandanstalt*, a transitional government institution administering the economy, and then by the new owners if they could be found. In most cases, particularly for the larger firms, the new owners came from the outside, mostly from West Germany, bringing in their own personnel.

In some cases, former managers were successful in the privatization process, becoming new owners and, thus, entrepreneurs. The rules of the game of a market economy including their administrative idiosyncrasies could not have been learned under state socialism. They were quickly adopted through expert advice from Western colleagues and through learning by doing, which inevitably resulted in quite a number of flops (see Chap. 12). Thanks to the more liberal policy attitude in Poland, entrepreneurs got acquainted with the respective know-how and skills already during the last years of the previous period, which made for a gentler start there (see Chap. 11).

6 BARRIERS TO SUCCESSFUL MODERNIZATION

Identifying the various difficulties, barriers, and obstacles for growth, welfare, innovation, or modernization can be done from two points of view. With the advantage of hindsight, the collapse of state socialism is explained as logical or inevitable consequence of its systemic deficiencies. The historiographic alternative is a frontline approach: to tell the story in its respective actual context in time. This would imply a focus on historical development, contingencies, and (missed) reform options. Concentrating on the systemic properties and policy choices which supported or impeded the ultimate success of the collectivist modernization project does not mean that the trajectory was unavoidable. For the individual socialist

countries, we can discern different periods with specific policy options. The GDR reform of 1963, for instance, opened up, although hesitatingly, opportunities that might have led to an alternative development path.

The system was launched with great expectations in Central and Eastern Europe after the catastrophe of the Great Depression and World War II. Its failure is a fact. The transition to the liberal modernization path has been affected by legacies from the preceding social order, which by no means have all been negative. Examples of positive achievements have already been mentioned. The most serious impediment for growth and modernization was the fatal inability of the leading strata to reform the system. The 1963 reform was gradually discontinued at the end of the 1960s and finally abandoned with the political change from Ulbricht to Honecker. In 1979, scholars and planners again pleaded for an integral reform of prices, one of the major stumbling blocks of the system. It had been elaborated and even initiated when Honecker all of a sudden called it off fearing Polish-style resistance (Malycha 2012). Political stability was deemed more important than economic rationality.

Barriers to successful modernization can be arranged in four groups:

- External
- Material-technological
- Organizational
- Political-ideological

They are not independent of each other but rather intertwined in a complex maze of policy constraints. External factors derive from the geopolitical situation of the period, in short, from the political-ideological divide into East and West and, hence, from Cold War. As part of the Soviet empire, the GDR stood in the frontline facing West Germany, which only grudgingly accepted its existence and the new borders. This required large expenditures for internal and external security, which burdened the investment budget. Export embargos (by the Western Coordinating Committee on Multilateral Export Controls or CoCom) hampered the import of high-end technology. In addition, autarkic tendencies (*Störfreimachung*) at home thwarted the international division of labor. Foreign trade relations placed special weight on inner-block or Council for Mutual Economic Assistance (CMEA) trade, whose share in world trade was rather small. And the CMEA trading partners were in general less developed than the GDR.

Such factors contributed to material backlogs and shortages. Unavailability and forced substitution of special technologies and intermediate inputs, delivery delays, lacking reinvestment funds: these typical examples were a permanent problem. János Kornai (1980) has analyzed the material situation of socialist firms as economics of shortage, that is, as a notorious disequilibrium characteristic of the system. He explained the phenomena by organizational idiosyncrasies of state socialism, the third road block to modernization.

Plan fulfillment as central performance criterion, a quasi-monopoly structure of industry, soft budget constraints, paternalism, and lacking international competition undermine the motivation to take risk, to innovate, to look for new combinations. If strategic decisions happen centrally, bureaucratic lethargy and simply the lack of appropriate information result in slack and the danger of misallocation. Of course, independently operating firm managers in market economies face similar difficulties. The difference is that their mistakes will be taken advantage of by competitors, and if not adapting quickly, they will be eliminated from the market.

Marxism-Leninism as constitutive ideology of the Soviet-type system has determined the collectivist modernization path. Here is not the place to elaborate the concept and its political and economic implications. It is sufficient to observe that socialism understood itself as a transitory state in the historical development from the liberal bourgeois society to the next historical stage, communism. Its properties were the dictatorship of the proletariat or unconstrained party rule in politics and social property rights, rigid centralization of decision-making, and administrative planning in economics. In consequence, individual initiative within the rule of law, market coordination, and competition were excluded from its institutional matrix. The liberal view has placed great importance on these institutions for development. Even if state socialism could claim the viability of its alternative, it did not prove convincingly its efficiency.

Doesn't the spectacular rise of China refute this proposition? Obviously yes, if we consider the Chinese system socialist because of its unremitting adherence to Marxism-Leninism and its rigid keeping of party rule. The Chinese Party leadership had carefully studied the breakdown and disintegration of the Soviet-type system and the Soviet Union. Any opposition to the political system had been crushed in 1989 on Tian'anmen Square. Yet, China has opened a limited range for private initiative and market coordination, and it has opened its economy, again to a limited extent, for international competition. At the same time, the Chinese state controls the

commanding heights of the economy. The system resembles Lenin's New Economic Policy, which, however, lasted only for a few years and could not display its full potential. In China, the hybrid system has resulted in almost 50 years of incomparable welfare growth and changed the external situation of the country into a dominant world market player. Whether the mixed system can propel the Chinese economy to the technological front and establish it there will be one of the interesting puzzles of the future. The option to open the economy and to introduce private enterprise and the market was, in principle, accessible for Eastern Europe as well. However, reform discourses in the mid-1950s (Hungary, Poland, GDR) and the late 1960s (Czechoslovakia, Hungary, Poland) did not lead to consistent policy changes due to Soviet resistance and intervention and due to the fear at home that they might also encompass political changes. Soviet attempts to transformation (*perestrojka*) came much too late, and thus the collapse looked unavoidable.

7 A BRIEF OVERVIEW

The following 11 chapters shed light on specific aspects of growth and development in state socialist systems and in transformation. The approach is not strictly comparative. The main focus of research lies on East Germany, a country between two larger neighbors, Poland in the east and the Federal Republic in the west. The relation with both neighbors was strenuous. Being the most developed and productive economy in socialist Eastern Europe, the GDR displayed a certain sense of superiority in eastward direction, but, at the same time, the party leaders observed with apprehension the turbulent Polish developments: workers' unrest, student protests, *Solidarność*. Apart from the Cold War and the ideological schism, apparent lags in productivity and welfare caused a feeling of unfair historical disadvantage leading to confrontation and segregation in the opposite direction, toward West Germany. For many people in the East, however, West Germany seemed a far-off land of Cockaigne. Thus, Poland was able to afford a much more relaxed and realistic attitude. Comparing GDR development with the development of both neighbors reflects this ambivalent position. Dealing with East Germany almost automatically provokes East-West comparisons, since the starting conditions before or at the end of the war were more or less equal in both parts of the country. So, it was expected that catching-up would happen rather smoothly after the system change. This did not take place in every aspect, particularly not in

innovation. Socialist legacies may be the explanation. The Polish catching-up problem was different due to its different starting position.

Chapter 2 analyzes the postwar territorial and demographic changes in Poland, which are generally less known than congruent developments in the two Germanies. They have been used as a social laboratory for Soviet-inspired modernization. Chapter 3 tries to assess the importance of technical progress for economic growth in the GDR. Quantitative analysis allows to identify the determinants and obstacles to growth in the overall economy and industry. Chapter 4 compares the long-term development of regional innovation activity in East and West Germany, finding that innovation activity in East Germany recovered after German unification, but that the East-West difference became larger. Chapter 5 focuses on synthetic fiber plants in Guben (GDR) and Gorzów (Poland). Both plants were subject to central planning and exhibited fast output growth mainly relying on Western technology imports to keep pace with international standards. In the transformation period, both plants were forced to significantly reduce their workforce and product range but managed to survive. In general, the development of both plants exhibits considerable similarities. Chapter 6 deals with the failure to benefit from the international division of labor. Core issues are the institutional set-up of foreign trade, the importance of efficiency criteria based on comparative advantage, pricing problems, and the almost inscrutable details of foreign trade statistics. Chapter 7 shows the persistence of family firms and the cautious privatization moves of the Polish government in the 1970s, a period in which the East German Party abolished the last privately owned family firms.

Cold war, ideological delusions, and autarkic tendencies have led to an East-West divide, which became nowhere more extreme as in the case of the two Germanies (unless maybe in the two Koreas). The trend to isolationism and seclusion inhibited the international exchange of goods and knowledge. As a consequence, GDR scholars, engineers, and economic leaders suffered from a limited access to productivity-enhancing information and advanced technology. Such barriers were removed immediately after the breakdown of the state socialist system. The next five chapters analyze how fast integration helped to change attitudes and behaviors as well as to fill gaps in knowledge.

Chapter 8 shows how the removal of political constraints after the unification improved the working conditions of East German researchers. While the transitory period in the 1990s caused high job insecurity, those who remained were able to catch-up and became fully integrated in their

scientific community. Chapter 9 extends transformation analysis to the socialist elites in general. It compares the professional background of office holders after 1990 in East Germany and Poland. What are their qualifications, and which positions did they occupy in the socialist period? How did they fare in transition? Chapter 10 demonstrates that the entrepreneurial habitus lay dormant under socialism and was resuscitated after the reunification. The transformation has changed the rules of the game and opened new productive opportunities for entrepreneurial talent, which, under the old regime, could be deployed only in a kind of rent-seeking: securing material supply or lobbying for a soft plan, for instance. Chapter 11 shows how the more liberal attitude to professional and scientific exchange with the West in Poland, in contrast to East German isolationism, helped its transition. The party enabled the elite to acquire from abroad knowledge about new production and organization techniques, cutting-edge science, and social capital. Chapter 12 extends this analysis, looking at entrepreneurs in East Germany being confronted with the big challenge to operate these enterprises in a capitalist system. Set free from social and legal restrictions, the entrepreneurial habitus takes up family traditions or unfolds spontaneously, leading to the economic success of newly established firms.

REFERENCES

- Autorenkollektiv (1976) *Die Ökonomie der betrieblichen Forschung und Entwicklung*. Handbuch. Die Wirtschaft, Berlin
- Bałtowski M (2009) *Gospodarka Socjalistyczna w Polsce. Geneza, Rozwój, Upadek* (The socialist economy in Poland: emergence, development, collapse). Wydawnictwo Naukowe PWN, Warszawa
- Becker J, Luft H (1990) Nobelpreise auf dem Gebiet der Wirtschaftswissenschaften. Zur Geschichte des Nobelpreises. *Wirtschaftswissenschaft* 38: 1432–40
- Behrens F (1966) Ursachen, Merkmale und Perspektiven des neuen Modells der Leitung der sozialistischen Wirtschaft. *Sitzungsberichte der Deutschen Akademie der Wissenschaften zu Berlin* 1966 (1)
- Borodziej W (2010) *Geschichte Polens im 20. Jahrhundert*. C. H. Beck, München
- Bourdieu P (2002 [1984]) *Questions de sociologie*. Éditions de minuit, Paris
- Brus W (1961) *Ogólne problemy funkcjonowania gospodarki socjalistycznej*. (General functional problems of the socialist economy). Państwowe Wydawnictwo Naukowe, Warszawa. English edition: *The Market in a Socialist Economy*. Routledge & Kegan Paul, London, 1972

- Chumiński J (2010) Mentálne bariery rozvoju gospodarczego PRL (Mental blocks to economic development of the People's Republic of Poland). In Chumiński J (ed.) *Modernizacja czy pozorna modernizacja. Społeczno-ekonomiczny bilans PRL 1944-1989 (Modernization or pseudo-modernization. The socio-economic balance of the PRP)*. Wydawnictwo Gajt, Wrocław
- Eisenstadt S N (2000) Multiple Modernities. *Daedalus* 129 (1): 1-29
- Engler W (1999) *Die Ostdeutschen. Kunde von einem verlorenen Land. Aufbau*, Berlin
- Flade F et al. (eds.) (2022) *Transformation in Polen und Ostdeutschland. Voraussetzungen, Verlauf und Ergebnisse*. Harrassowitz, Wiesbaden
- Flade F (2022) Außenhandel als Innovationsbarriere. (Selbst-) beschränkte Technologieimporte In der DDR-Mikroelektronik. In Flade F et al. (eds.): 41-56
- Fukuyama F (1989) The End of History? *The National Interest*. 16 (Summer 1989): 3-18
- Gerschenkron A (1962) *Economic backwardness in historical perspective*. Harvard University Press, Cambridge MA
- Gvišiani D M (1974) *Management. Eine Analyse bürgerlicher Theorien der Organisation*. Translation from the Russian, Akademie Verlag, Berlin
- Haustein H-D, Maier H (1985) *Innovation and Efficiency. Strategies for a Turbulent World*. Akademie-Verlag, Berlin
- Haustein H-D et al. (1988) *Innovationen in der sozialistischen Volkswirtschaft. Grundlagen, Wirkungsweise, Effektivität*. Die Wirtschaft, Berlin
- Hayek F A (2002 [1968]) Competition as a Discovery Procedure. *Quarterly Journal of Austrian Economics* 5. <https://mises.org/library/competition-discovery-procedure-0>.
- Heinrichs W, Maier H (eds.) (1976) *Gesetzmäßigkeiten der intensiv erweiterten Reproduktion bei der weiteren Gestaltung der entwickelten sozialistischen Gesellschaft* Akademie-Verlag, Berlin
- Hipp A et al. (2022) *Comprehensive Patent Data of the German Democratic Republic 1949-1990—technical report and dataset overview*. Jena Economic Research Papers # 2022 – 011
- Hirschman A O (1970) *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Harvard University Press. Cambridge MA
- Hoffmann D (2013) *Von Ulbricht zu Honecker. Die Geschichte der DDR 1949 – 1989*. be-bra Verlag, Berlin
- Kalecki M (1993 [1963]) Introduction to the Theory of Growth in a Socialist Economy. In: *Collected Works of Michał Kalecki*, Osiatyński J ed. Volume IV *Socialism: Economic Growth and Efficiency of Investment*. The Clarendon Press, Oxford

- Kleinmann J (2022) Die Geschlechterpolitik der Volksrepublik Polen und ihre Auswirkungen in der langen Zeit der Transformation. In: Flade F et al. (eds.): 255-68
- Kochanowski J (2010) Tylnymi drzwiami: „Czarny rynek” w Polsce 1944–1989 (By the backdoor: “Black market” in Poland 1944-1989). Neriton, Warszawa
- Kollmorgen R (2019) Modernization Theories. In Merkel W et al. (eds.) *The Handbook of Political, Social, and Economic Transformation*, 55-64. Oxford University Press, Oxford
- Kornai J (1979) Resource-Constrained versus Demand-Constrained Systems. *Econometrica* 47: 277-92
- Kornai J (1980) *The Economics of Shortage*. North Holland, Amsterdam
- KPdSU (1971) XXIV. Parteitag der Kommunistischen Partei der Sowjetunion. 30. März–9. April 1971. Schlußworte Direktiven Resolutionen. APN, Moskau and Dietz, Berlin
- Lepsius M R (1995) Handlungsräume und Rationalitätskriterien der Wirtschaftsfunktionäre in der Ära Honecker. In: Theo Pirker et al. (eds.) *Der Plan als Befehl und Fiktion. Wirtschaftsführung in der DDR*, 347–62. Westdeutscher Verlag, Opladen
- Lipset S M (1959) Some Social Requisites of Democracy. *American Political Science Review* 53 (1): 69-105
- Ludwig U et al. (1972) Bildung als ökonomische Potenz. Ein Beitrag zur marxistisch-leninistischen Theorie der intensiv erweiterten Reproduktion. Dietz, Berlin
- Malycha A (2012) Der „Konsumsozialismus“ der Honecker-Ära und der Eklat um die Erhöhung der Verbraucherpreise im Herbst 1979. *Deutschland Archiv* 45: 305–18
- Marschall W (2022 [1990]) Der Osten Deutschlands - ein Standort europäischer Elektronik-Industrie. Ms. <https://doi.org/10.26092/elib/1809>
- Marx K (1867). *Capital. A Critique of Political Economy*. Volume I. <https://www.marxists.org/archive/marx/works/1867-c1/ch24.htm#S3>
- Mazurek M (2005) Socjalistyczny zakład pracy. Porównanie fabrycznej codzienności w PRL i NRD u progu lat sześćdziesiątych (The socialist workplace. A comparison of daily factory routine in the PRP and the GDR at the beginning of the 1960s). Wydawnictwo TRIO, Warszawa.
- Meuschel S (1992) Legitimation und Parteiherrschaft in der DDR. Zum Paradox von Stabilität und Revolution in der DDR 1945–1989. Suhrkamp, Frankfurt a. M.
- Morawski W (2011) *Dzieje gospodarcze Polski (Economic history of Poland)*. 2nd ed. Difin, Warszawa
- Münch I von (1994) Rechtsstaat versus Gerechtigkeit. *Der Staat* 33: 165-84

- North D C (1994) Institutions Matter. Economic History 9411004, University Library of Munich. <https://econwpa.ub.uni-muenchen.de/econ-wp/eh/papers/9411/9411004.pdf>
- Ökonomisches Lexikon (1978-80) 3rd ed. Die Wirtschaft, Berlin
- Pollack D (2008). Theoriefortschritte in der Transformationsforschung? Erfahrungen mit der Schwerkraft der Modernisierungstheorie beim Versuch ihrer Überwindung. In Bönker F, Wielgohs J (eds.) Postsozialistische Transformation und europäische (Des-)Integration, 41-61. Metropolis, Marburg
- Protokoll (1971) Protokoll der Verhandlungen des VIII. Parteitages der SED, 15. bis 19. Juni 1971. Dietz, Berlin
- Richta R (ed.) (1966) Civilization at the crossroads - the social and human context of scientific-technical revolution. Liberty, Prague
- Roesler J (2020) Geschichte der DDR. Basiswissen Politik/Geschichte/Ökonomie. 5th ed. Papyrossa, Köln
- Roszkowski W (2003) Najnowsza historia Polski Vol. 3: 1980-2002. (Newest history of Poland). Świat Książki, Warszawa
- Schröder K (2013) Der SED-Staat: Geschichte und Strukturen der DDR 1949-1990. 3rd ed. Böhlau, Köln
- Schumpeter J A (1950) The March into Socialism. American Economic Review 40: 446-56
- Schwarz A (2022) Unternehmerischer Habitus und seine partiellen Wandlungsmöglichkeiten durch die postsozialistische Transformation – eine theoretische Perspektive. In: Flade F et al. (eds.): 141-56
- Šik O (1967) Plan and Market Under Socialism. Academia Publishing House of the Czechoslovak Academy of Sciences, Prague
- Sowa A L (2011) Historia polityczna Polski 1944–1991 (Political history of Poland 1944-1991). Wydawnictwo Literackie, Kraków
- Steiner A (2004) Von Plan zu Plan. Eine Wirtschaftsgeschichte der DDR. DVA, München
- Verfassung (1974). Verfassung der Deutschen Demokratischen Republik. 1974 (GBl. I., 432)
- von Tunzelmann N et al. (2010): Interactive Dynamic Capabilities and Regenerating the East German Innovation System. Contributions to Political Economy 29 (1): 87-110
- Wagener H-J et al. (2021) Sozialistische Ökonomie im Spannungsfeld der Modernisierung. Ein ideengeschichtlicher Vergleich DDR – Polen. Springer, Wiesbaden
- Weber H (2012) Die DDR 1945 – 1990. 5th ed. Oldenbourg, München
- Wyrwich M (2021) Historical episodes and their legacies across space: A famous case revisited. Ms. Groningen.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

