

DEVELOPMENTAL LABOR:

The Transformative Roles of Labor in Economic Catch-Up

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Abstract

After the Second World War, only a handful of countries effectively accelerated their economic progress and jumped to high-income status. Among these cases, South Korea, Taiwan, and Brazil are outstanding. This thesis examines three case studies and reviews two bodies of literature: the developmental state; and the varieties of capitalism (VOC). These theories highlight the roles of the state, businesses, and institutions, but they ignore the active role of workers, particularly labor movements. These movements are conceptualized as *developmental labor*.

Developmental labor has three main characteristics. First, the labor movements want to share the benefits of capitalism instead of opposing it; therefore, they demand higher wages and welfare with respect to the growth and sustainability of their firms and sectors. Second, they are strong enough to maintain their autonomy and to freely mobilize outside the state structure, as well as capitalist domination. Finally, their movements in bargaining with the state and capitalists are effective.

Instead of the developmental state (which emerged in the 1960s) and the good institutions (which advanced in the 1990s), the rise of developmental labor in the 1970s triggered economic transformation in the 1980s in our case studies. This thesis reveals that developmental labor determines the surge in wages. During 1970–85, real wages in South Korea, Taiwan, and Brazil skyrocketed, forcing capitalists, the strong-enough state, and the labor movements themselves to evolve toward higher technologies and skills in the late 1980s.

The varieties of developmental labor induce different types of state–capitalist reaction and institutional evolution. For example, during a critical juncture, the labor movements in South Korea chose an aggressive approach to negotiating with capitalists, with the capitalists countering

the movements by employing rival methods and developing liberal labor institutions. By contrast, in Taiwan the labor movements chose a moderate approach; therefore, the networked institutions were developed. Finally, Brazil's labor movements were bifurcated; thus, the evolving institutions were also bifurcated.

This thesis brings the transformative roles of workers back into the literature on economic catch-up and offers three theoretical contributions. First, the rise of developmental labor is very important for economic transformation, although it is ignored by existing theories. Second, the varieties of developmental labor relate to trajectories of labor institutions such as wage regimes, labor regulations, welfare schemes, and education systems. Third, the thesis findings also construct a theoretical linkage between the developmental state and VOC.

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Writing a good Ph.D. thesis is even more laborious. Among countless articles, only a few find their place in a reference list. Numerous lines and paragraphs are killed before having a chance to argue. However, ambitious students, including myself, do not give up and fully dedicate their efforts to make a good-enough manuscript – a manuscript that, like Princess Aurora in the classic fairy tale *Sleeping Beauty*, waits silently to be discovered by other academic readers.

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Introduction:

Bringing Labor Back in

As Lucas Jr. (1988: 5) said, once one starts to think about economic development, it is hard to think about anything else. This thesis focuses on a specific puzzle of development, namely, “Why, and how, did some countries speedily move on an upward trajectory of economic growth and technology after World War II, while others decayed and declined?” Answering this question is important because it offers a guideline for today’s developing countries to enhance their citizens’ well-being. This chapter is organized into five sections. It first identifies high-growth economies and interesting case studies. Section two discusses existing explanations of successful cases and their theoretical gaps. The next section illustrates the thesis arguments. The fourth section demonstrates the originality and intended contributions of the argument. Finally, the last section depicts the method and outline of the thesis.

A Successful Latecomer and Selected Case Studies

The first and foremost task of discussing successful economies is to clarify the meaning of “successful.” This thesis considers the term from three perspectives.

First, there is *the time frame*. From a long-term perspective, the world economy stagnated before the Industrial Revolution (Stiglitz and Greenwald, 2014: 13-14). After practical steam-engine machines were widely commercialized in the United Kingdom in the late eighteenth century, the power of production was elevated to an unimaginable level and markets expanded via

networks of steam-engine trains. Many Western European nations and Western Offshoots quickly utilized similar technologies and overwhelmed the UK in the early twentieth century (Chandler Jr., 1977). These groups of economies are loosely defined as forerunning countries in global economic history.

Nevertheless, the experiences of these forerunners cannot easily be used as a guideline for today's emerging economies. To a large extent, these developed nations were empires, with extractive power to grab resources from subordinate countries. This situation changed rapidly after the Second World War (1939–45) ended. From the 1950s to 1960s, these empires were persistently dissolved, and more than fifty countries were decolonized. The global economic institutions were also redesigned. Regarding these changes, the new epoch of global economic development had begun in 1950 (Maddison, 1982). This thesis focuses on economies that grew quickly during this new epoch since they offer more applicable lessons for other latecomers.

Second, successful economies have to accelerate economic growth very fast and effectively catch up with the forerunning nations within a short period of time. Northeast Asian economies, for example, have generally spent fewer than forty years since World War II upgrading from lower middle-income to high-income countries. Together, some countries in Latin America have reached very high growth rates. These cases offer us real inspiration because other developed and forerunning nations such as the US, the UK, and Australia have taken around a century to accomplish a similar level of income (Felipe et al., 2012). As such, *fast-paced economic growth* is the second requirement of successful economies.

Finally, a successful economy entails *technological progress*. Technological upgrading and economic growth are largely intertwined (Stiglitz and Greenwald, 2014); however, occasionally, this is not the case. Some nations create wealth by extracting precious resources

instead of technologies. For instance, the economy of Suriname, one of the smallest countries in South America, depends on gold, corundum, and oils. Its GDP per capita increased from 2,000 USD in 2000 to around 9,400 USD in 2015. However, up until now, the resource share has remained higher than 85 percent of total exports (Lashitew et al., 2020: 11), and high-tech exports account for only 1.169 million USD (World Bank, accessed November 2, 2020). On the contrary, this thesis focuses on successful economies that produce and export high-tech products, which help them to sustain long-term economic growth.

This thesis applies these three criteria to justify selection of the case studies. As will be shown below, South Korea and Taiwan are conventional cases of successful latecomers. Both countries not only achieved high economic growth and advanced technologies, but their experiences are also applicable for other late-coming nations after the Great War. In addition, this thesis offers a controversial, yet interesting, case study of Brazil. Although Brazilian GDP per capita increased sustainably between 1950 and 1980, it is misunderstood that Brazil's economic growth is based solely on resources. Indeed, Brazil has successfully diversified strategic industries to many high-tech products on its path of development, providing useful lessons for other developing countries, where economies are fluctuating and unevenly developed across areas and industrial sectors.

A Conventional Case: South Korea and Taiwan

According to the Commission for Growth and Development (CGD), since World War II only a handful of economies have experienced high and sustained economic growth, defined as an average of 7 percent growth of per capita income or more over 25 years plus (Sen, 2013: 72). Between the 1960s and 2008, just 13 of 101 developing countries were able to grow as fast as this yardstick (Sen, 2013). Moreover, only 6 of these 13 economies successfully transited from middle- to high-income status, including Hong Kong, Japan, Oman, South Korea, Singapore, and Taiwan. Among these cases, this thesis focuses on South Korea and Taiwan because they clearly satisfy three criteria of a successful economy, as defined above.¹

Compared to Japan, South Korea and Taiwan are *successful latecomers*, and their economic growth performs well only after the 1960s. Since the end of World War II in 1945, South Korea encountered a brutal war with North Korea (1950–3) and the ineffective government of Rhee Syngman (1948–60). In 1960 Korea's GDP per capita accounted for only one-third of that of Japan. A sign of significant economic progress came after Park Chung-Hee assumed power in 1961, which was the beginning of the state reformation and industrial upgrading. Between 1970 and 2000, GDP per capita skyrocketed from only 300 USD to around 12,260 USD (World Bank, accessed Dec 22, 2020)

In Taiwan the situation was comparable to that of Korea. When the Kuomintang (KMT) was defeated by Mao Zedong and retreated to Taiwan in 1949, the party was not in good shape.

¹ More than these reasons justified by the above three criteria, two other indicators could be considered: the autonomy and coherence of the selected cases. Compared to Hong Kong, they have higher autonomy. Compared to Singapore, the production compositions of South Korea and Taiwan are more coherent. They are an industry-based economy; however, Singapore is a service-based economy. For example, in 1960, Singapore's service value-added was about 75 percent of GDP. Until today, this ratio has been sustained about 70 percent of GDP (World Bank, accessed Dec 21, 2020).

Chiang Kai-shek, a leader of the KMT, hurriedly examined the causes of the KMT's failures in Mainland China and discovered many problems such as corruption and unproductive apparatus of the party. Following this, he drove efforts to reform the party and increased the state capability during the 1950s. This reformation yielded critical results after the 1960s. GDP per capita continually increased from approximately 400 USD in 1970 to 14,900 USD in 2000.

In another dimension, compared to Oman, which is an oil-rich country, Korea and Taiwan had limited precious resources and initial endowments (Doner et al., 2005). Hence, they did not have any gravy train to ride. These economies upgraded technologies and developed high-value industries in response. For example, South Korea's patent applications increased from approximately 5,000 cases in 1980 to 25,700 cases in 1990, reaching 102,000 cases in 2000 (World Bank, accessed Dec 21, 2020). In Taiwan, during the same period, total patent applications increased from approximately 13,000 cases in 1980 to 34,300 and 61,200 cases in 1990 and 2000, respectively (Intellectual Property Office of Taiwan, accessed Dec 21, 2020).

According to these track records, South Korea and Taiwan became a conventional case of successful latecomers studied by prominent scholars, namely, Alice Amsden, Chang Ha-Joon, and Robert Wade during the late 1980s. After the 1990s, the successful experiences of these economies sparked debate and attracted attention from researchers and policy-makers in other regions such as Southeast Asia (i.e., Doner et al., 2005), Africa (i.e., Brautigam, 1994; Hauge, 2019), Latin America (i.e., Kay, 2002), the Middle East (i.e., Levi-Faur, 1998), and Europe (i.e., Riain, 2004). These studies continually offer deep insights into upgrading industries in developing countries.

A Controversial and Underrated Case: Brazil

“Latin America is a prime candidate for comparison with East Asia. The two regions are the most industrialized in the developing world” (Gereffi, 1989: 506). Among the successful countries in Latin America, Mexico has gained proximal advantages from being located near the regional growth pole, the United States. Together, R&D expenditure is higher and more dispersed among strategic sectors in Brazil than Argentina (Negri and Turchi, 2007: 17–18). Also, the share of high-tech exports in Brazil (13% of manufacturing exports) is higher than in Chile (7%) and Argentina (5.1%) (World Bank, accessed November 4, 2020). Therefore, Brazil is outstanding in relation to its neighbors.

From 1950 to 1980 Brazil was part of the high and sustained growth league (Sen, 2013). During this period Brazil’s GDP growth and industrialization were even higher than in South Korea and Taiwan. Its GDP per capita increased straightforwardly from just 210 USD in 1960 to 1,947 USD in 1980, which generated a compound annual growth rate of more than 10 percent. The value-added generated by Brazilian industries increased from 31 percent of GDP in 1960 to 39.6 percent in 1980, when Korea accomplished only 32 percent (World Bank, accessed Jan 2, 2021).² Brazil’s technological capacity in strategic industries was also developed, even during the crisis and economic stagnation from the mid-1980s to 1990s. For this reason, when the economy revived in the 2000s, Brazilian firms flourished and GNI per capita reached the lower bound of the high-income threshold in the mid-2010s (World Bank, accessed July 29, 2019).

² It is worth noting that Brazil had a huge population (approximately 118.56 million people in the 1980s), which accounted for approximately three times the South Korean population, although Brazil could attain a higher GDP per capita than South Korea. Other sources that referred to Brazil as a high-growth and high-potential country (within a particular timeframe) are Khan and Blankenburg (2009) and Balassa (1990: 2).

Today, even if Brazil is still officially classified as an upper/middle-income country, its potential is widely recognized. Scholars consider it to be part of BRICS,³ the major emerging national economies. Brazil's high-tech exports have reached approximately 11,100 million USD. While Brazil's technological capability is still lower than that of South Korea and Taiwan, it is better than Chile and Argentina – other high-income countries in Latin America.⁴ It innovates and produces many complex products in various industries, for example, the flex-combustion engine, ultra-deep field extraction of petroleum, and mid-sized airplanes.

Apart from this growth and technological performance, Brazil provides two other benefits as a case study. First, as Kunal Sen states, “Very few developing countries meet the criterion of sustained high rates of growth – most developing countries tend to observe stop-go growth episodes” (Sen, 2013: 72). Brazil is thus an interesting case because it represents a stop-go growth pattern, which is actually relevant to the general patterns of developing countries. Second, Brazil is a large country in terms of population size and territory, which provides lessons for other “large” emerging economies such as India, China, and South Africa.

Two Theories, Three Protagonists: The State, Businesses, and Institutions

How can we explain the good economic performances of South Korea, Taiwan, and Brazil? This thesis engages with two prominent sets of theories: *the developmental state*, and the *varieties of capitalism*. This thesis agrees with both theories that the state, businesses, and institutions are

³ The acronym consists of Brazil, Russia, India, China, and South Africa.

⁴ Among the successful countries in Latin America, Mexico has gained proximal advantages from being located near to the regional growth pole, the United States. Together, R&D expenditure is higher and more dispersed among strategic sectors in Brazil than Argentina (Negri and Turchi, 2007: 17–18). Also, the share of high-tech exports in Brazil (13% of manufacturing exports) is higher than in Chile (7%) and Argentina (5.1%) (World Bank, accessed November 4, 2020). Therefore, Brazil is outstanding in relation to its neighbors.

important for explaining successful development. However, focusing on these three protagonists alone and ignoring another important actor – organized workers – leads us to an incomplete understanding of the phenomenon. These issues will unfold in the following parts.

The first body of literature is the developmental state. Scholars who work on this concept tend to explain successful economies in terms of productive alignments between the state and businesses. The states in South Korea, Taiwan, and Brazil⁵ have been considered as being autonomously embed businesses into developmental processes and govern them to upgrade their productive capabilities (Evans, 1995; Doner et al, 2005; Amsden, 1989; Wade, 1990; Schneider, 2015; Hochstetler and Montero, 2013). This explanation is influential, but inadequate in two ways.

First, regarding historical accounts, while the alliance for growth was effectively developed during the 1960–70s, it generally fabricated the particular set of interests around the labor-intensive economy.⁶ These labor-intensive industries contained huge shares of the export portfolio and GDP. Furthermore, the developmental state derived its performance from these sectors. Therefore, the state and businesses closely aligned their destinies on the existing industries, and they all had incentives to protect them. In this way, the state capacity and effective alliance alone do not fully explain why the South Korean, Taiwanese, and Brazilian state had to quickly divert from labor-intensive sectors and upgrade themselves into high-tech economies in the early 1980s, when the strong state had already declined.

Second, scholars who believe in the concept of the developmental state usually presume that the state is strong and repressive; therefore, other social forces are suppressed and ostensibly

⁵ Although Brazil has less state capacity, there are capable state agencies (so-called “pockets of competence”) that work closely with advanced business sectors. As such, the productive state–business relation is still highlighted as the determinant of Brazil’s high growth.

⁶ For example, they actively export textiles and apparel. Even if the shipbuilding industry developed during the early phase of industrialization in Korea and Taiwan, it focuses on relatively labor-intensive parts of production.

follow the conduct of the state–business consortium through the process of development. This presumption creates a critical bias. First of all, because domestic players are dominated by the state, external factors such as external threats and Multinational companies are overly emphasized as the determinant of change in state capacity and policies. Doing so misperceives the critical role of labor movements in economic development, which emerged very quickly in the mid-1970s, and it also leads to a misunderstanding about the high and sustained growth phase of the case study.

Another body of literature focuses on the institutional features of capitalism, the so-called *varieties of capitalism (VOC)* approach, developed by Peter Hall and David Soskice. According to the literature, there are at least two ideal types of high-income capitalism: a liberal market economy (LME), and a coordinated market economy (CME). These ideals have their own “institutional complementarities” and “institutional advantages,” which generate promising economic growth and technologies (Hall and Soskice, 2001). Many developing countries cannot produce good economic performances because their institutional features do not productively match and support one another (Hall and Gingerich, 2009; Schneider, 2009, 2013).

Outside the United States and Germany, Schneider (2013) demonstrates that most countries in Latin America are underdeveloped and have hierarchical characteristics; therefore, they are called “hierarchical market economies (HMEs).” While Brazil’s economic institutions are relevant to HMEs, Brazil can avoid bad outcomes and become an outlier of the region because of the productive role of the state via “policy impacts” and positive reinforcement from the commodity boom (Schneider, 2013: 181). While Schneider does not internalize the state into his model of capitalism, his findings bring the state back into the debate afterwards (see Hancké, 2009).

Many scholars have discovered a similar type of capitalism in South Korea and Taiwan, where their economic institutions operate under hierarchical relations between the state and

businesses. If bad institutions of HMEs play the critical role of gravity holding economic growth down on the ground, the developmental state is the rocket booster. They have argued that the state in these economies is obviously proactive and prone to development because of external pressure, as well as internal constraints. As such, the state advances industrial policies and creates “encompassing HME” (Carney, 2016) or “co-governed capitalism” (Walter and Zhang, 2012).

The VOC approach is useful and widely utilized for analyzing many economies; however, it has a critical shortcoming. It generally portrays the static, rather than dynamic, features of each economy. Where do these types of capitalism come from? This question cannot be coherently answered by the literature. For this reason, it is not clear how institutions in Brazil, South Korea, and Taiwan quickly went from being bad (when they were poor in the 1960s) to being better in the 1990s. Beyond the limitations within each theory, there is *a missing link* between the developmental state and the VOC approach. The existing explanations cannot bridge the roles and actions of the developmental state with the evolution of labor and firm-related institutions.

In conclusion, the above sets of literature commonly neglect the active roles of labor and labor movements among their concerns. Simultaneously, they do not fully explain the transition period of the case studies from being labor-intensive to becoming technology-intensive economies, or from bad to good institutions. Last but not least, while some scholars (i.e., Carney, 2016; Walter and Zhang, 2012) have tried to link these two theories together, their efforts touch upon the macro-features of the system, but they still do not clearly explain the dynamics of sub-system institutions and complementarities. By observing the empirical evidence in the following chapters (a broad overview in Chapter 2 and case-based investigations in Chapters 3–9), this thesis will fill the theoretical gap and show that *developmental labor* is the trigger for economic and institutional transition.

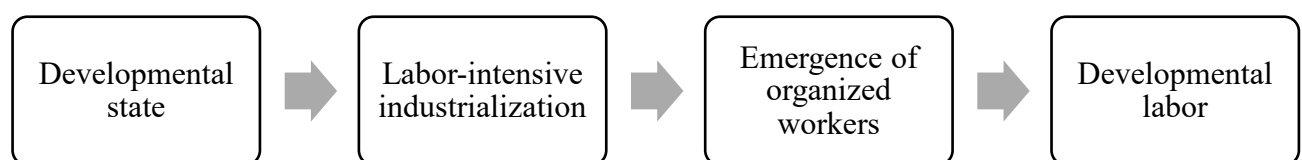
Thesis Argument: Developmental Labor is a Critical Trigger of Economic and Institutional Transformation

This work offers a new concept called “developmental labor” that entails three core arguments.

First, the state creates developmental labor. In developing countries, where market mechanisms and economic institutions are underdeveloped, the developmental state performs an important function in governing economic development via resource allocation. Generally, during the early phase of industrialization, the developmental state creates export-led, labor-intensive economies (Doner et al., 2005: 341). This process consequently creates higher economic growth and a higher share of industrial workers. These workers then incrementally organize themselves through the process of development, as found in South Korea, Taiwan, and Brazil.

These productive organized workers have three main characteristics. (1) They want to share the benefits of capitalism instead of opposing it; therefore, they demand higher wages and welfare in terms of the growth and sustainability of their firms and sectors. This characteristic was groomed partly by the state’s campaign of economic nationalism (Kim and Park, 2003). (2) They are strong enough to maintain their autonomy and to freely mobilize against state repression and capitalist domination. (3) Their movements for higher wages and welfare are “effective.” When organized workers simultaneously have all these features, they are defined as developmental labor.

Figure I.1: The mechanism between the developmental state and developmental labor



Second, developmental labor triggers economic and institutional transformation into high-tech and high value-added economies. A theorized mechanism is thus: developmental labor stimulates a wage surge, which increases labor costs and decreases the advantages of labor-intensive production. This triggers capable capitalists to switch their investments to higher capital-intensive, higher value-added, and higher technology-intensive production. Furthermore, workers who have higher wages have greater capacity to invest in their skills, as well as their children's education. High demand for learning technology and skills induces the state to implement policies that support industrial upgrading. If the state is capable of quickly capturing a signal of the wage surge, the policy adjustment abruptly comes and smoothly facilitates industrial transformation. This virtuous cycle of wage growth is presented in **Figure I.2** (below).

In South Korea developmental labor initially emerged in the shipbuilding industry during the late 1960s (Nam, 2009). In the early 1970s labor disputes and wage-bargaining strikes expanded to the textile and other export-oriented sectors. From 1975 to 1979 there were more than 5,000 cases of labor disputes, and the predominant cause of the disputes was demands for higher wages (Kim, 1991: 48). This pattern of developmental labor is consistent with the pattern of real wage growth. As Kim S. Kwan stated, "the industrial real wage rate remained virtually unchanged during the earlier period of industrialization (1961–1966). Between 1967 and 1978 the real wage rate increased by more than 370%." He went on: "After 1977 real wages gained some ground over productivity increases. The recent gains in wages reflect the impact of new government policy for structural adjustment in labor markets, which was instituted in response to increasingly militant Korean labor unions' demands" (p. 43).

These arguments and pieces of empirical evidence are in contrast with the conventional wisdom of industrial relations in South Korea. The literature has usually pointed to the mid-1980s

as the beginning of autonomous labor movements. In fact, the labor movements critically mobilized earlier (in the 1970s), and they had crucial effects on wages. This is the foundation of dynamic comparative advantage in the 1980s. As Kim Linsu argued, “eroded competitiveness in low-wage-based mature technology industries forced Korean firms in the 1980s to shift their emphasis from strategies focusing on mature technologies to those focusing on intermediate technologies” (Kim, 1999: 126). If wages had stayed at 1955 levels, Stephanie Seguino insisted, “South Korea would never have shifted exports from human hair to autos and electronics” (Seguino, 1999: 321).

At firm level, we can learn from the development of a company named *Anam Industrial*. Today, it is one of the largest chip-packing companies in the world. Looking back to the 1950s, *Anam Industrial* was a bicycle producer. In the late 1960s the chairman and his son intended to diversify products into higher value-added sectors, and they chose the electronics industry. In the early 1970s the company simply imported materials from the United States, assembled them in South Korea, and then re-exported them back to the United States. This simple business model was viable only because of the cheap labor cost. Hence, it allowed *Anam Industrial* to enter into low value-added activities in a high-tech industry. In the 1980s, when real wages increased substantially, *Anam Industrial* established an in-house R&D department and actively invested in technologies for upgrading through the value ladder (see Hobday, 1995: 1179). If wages had stagnated at 1955 levels, to coin Seguino’s phrase, *Anam Industrial* would never have shifted its products from bicycles to chip packing.

The similar virtuous cycle of wage growth also happened in Taiwan. Developmental labor initially emerged within state-owned enterprises (SOEs) and the corporatism regime. In the 1970s workers gradually voiced their demands for higher wages and welfare via Kuomintang’s branches

in industrial plants. They too established the first independent labor union in the Far East Textile Company in 1977. Labor management disputes increased from only 15 cases in 1965 to 458 cases in 1975 and 626 cases in 1980 (Chiu, 2002). Similar to South Korea, these developmental labor movements pushed real wage rates up from around 5.28 percent, on average, in the 1960s to 7.56 percent in the 1970s. The persistence of wage increases and continuing decline of comparative advantages triggered changes in the industrial policies, as well as business activities.

Since the mid-1970s the Economic Affairs Minister, Y.S. Sun, recognized wage increases as a prime pressure for structural adjustment (Lauridsen, 2008: 456). Many policies for industrial upgrading were continually implemented (see Hsueh et al., 2001: 61–3). At sectoral level, even in the textile industry, firms adjusted themselves toward the higher value-added activities and high-tech parts of the industry. For example, before 1964, the major export products of the industry were rayon staple and filaments. In the 1970s it diversified its products to polyester filaments and polyacrylonitrile staple (Tu, 2001a). The public–private alliance for an electronics research consortium emerged in the early 1980s. For instance, “no fewer than 46 companies elected to join the [laptop PC] consortium” in 1990 (Mathews, 2002: 640).

In Brazil developmental labor emerged earlier than in South Korea and Taiwan. In the mid-1940s, for instance, approximately 100,000 workers participated in a general strike in the Metropolitan Sao Paulo region (French, 1989: 20). In 1953 approximately 300,000 workers in various economic sectors, namely, textiles, metal, and woodwork, were involved in walk-outs and campaigned for higher wages (Alexander and Parker, 2003: 96). From 1946 to 1964 the real wage rates expanded on average by 4 percent per year. During the same period, real minimum wage growth increased by 7.74 percent per year. However, these processes of developmental labor formation were interrupted when the army overthrew the Goulart government in 1964.

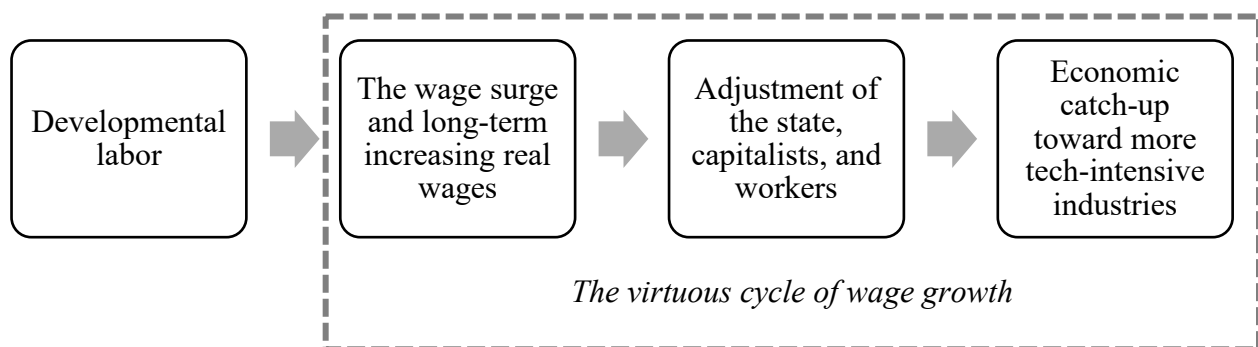
Between 1964 and 1967 the military government repressed urban labor movements, and hence the regular wage growth stagnated. The minimum wage also changed from a redistributive measure to a built-in stabilizer. Similar to Taiwan, the government penetrated its apparatus into villages and industrial plants. However, Brazil is a very large country, where both the state and labor cannot completely control all politico-economic factions. This created the bifurcated situation whereby, on the one hand, some labor factions peacefully cooperated with the state (cooperative wing), while, on the other hand, there were many labor movements actively (and sometimes radically) bargaining with the state and businesses for higher wages and welfare (popular wing). The latter group regrouped and regained its bargaining power in the late 1960s.

In 1967 the labor movements gradually revived in a section of the Belga-Mineira steel plant in Contagem (industrial suburb of Belo Horizonte). Approximately 15,000 workers were involved in strikes against the government salary policy and demanded immediate salary increases. Right after the Contagem strike, in 1968 numerous workers participated in May Day and shouted the slogan: “Only a strike can break through the salary squeeze [arrocho]” (Almeida and Lowy, 1976: 112). In the early 1970s approximately 10,000 workers at the Villares Steel plant declared a strike against overtime and demanded a 10 percent increase in wages. After the mid-1970s, developmental labor fully resumed and expanded their coalitions to mid-range salaried and service workers (Antunes and Wilson, 1994: 26). At the end of the military regime, the number of strikes reached at least 843 cases per year, leading to at least 48 million workdays lost (p. 27).

These developmental labor movements were consistent with real wage growth in Brazil. Between 1970 and 1985, the real cumulative growth rates were approximately 9.68 percent per year (Braumann, 2004: 124). The high growth rate, particularly in big cities such as Sao Paulo, created pressures for industrial upgrading responded to by the state and capitalists. In the 1970s,

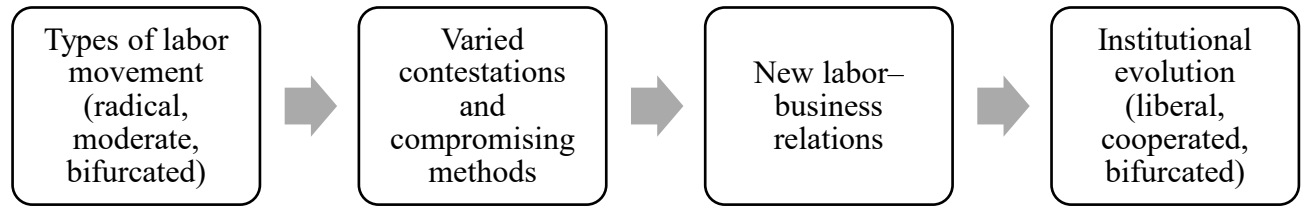
for example, Petrobras – the largest petroleum company in Brazil – shifted its business strategy from quantitative expansion (i.e., extracting more resources) to more active learning transferred from foreign partners. Core technologies such as a floating-production system, a wet Christmas tree, and a flexible pipe and riser were developed during this period (Dantsa and Bell, 2009: 830–6). Other high-tech industries, namely, aircraft and informatics, were also established in this period.

Figure I.2: The mechanism between developmental labor and economic catch-up



Third, developmental labor not only triggers change via the wage surge but also contributes to the institution's evolution. In South Korea organized workers choose radical approaches to voice their demands against capitalists' interests, with employers responding by employing more labor-saving technologies and supporting liberal institutions. In Taiwan, where the state intervenes closely to mediate business–labor relations, organized workers choose compromising strategies; therefore, Taiwanese capitalists employ more labor-complementing technologies and support a coordinated market economy. Finally, Brazil's labor movements are bifurcated. Only some parts of the labor movement are radical, while others are not. Hence, Brazil's labor institutions have developed into a bifurcated market economy (**Figure I.3**).

Figure I.3: The mechanism between types of labor movement and trajectories of labor institutions



Originality and Intended Contributions

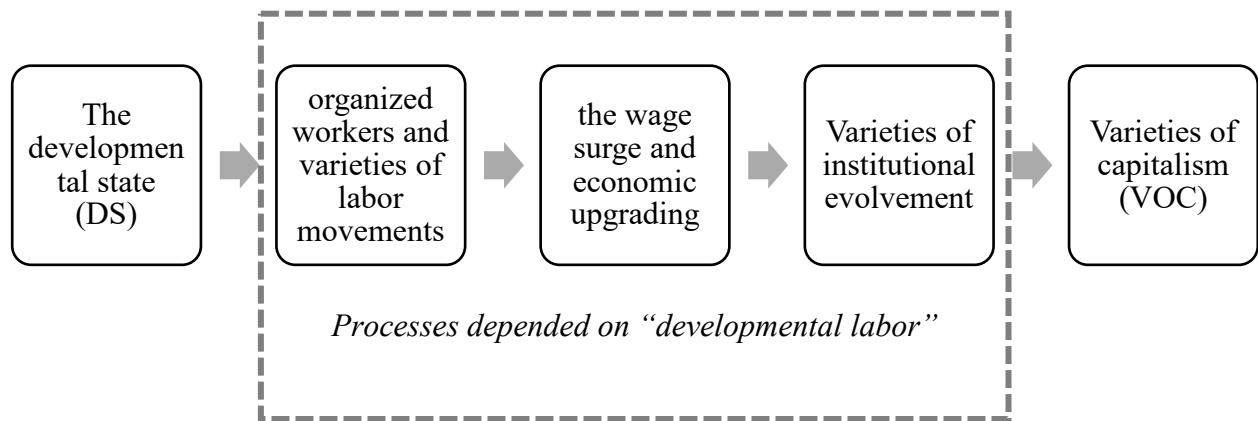
The thesis intends to provide three contributions. First, it revises the developmental state argument, which has dominated the explanation of successful stories in South Korea, Taiwan, and Brazil for more than two decades. It also offers an alternative interpretation, that is, developmental labor is the trigger of industrial upgrading and institutional transition to high-tech economies. In other words, the determinant of change in state capacity and policies during the transition period has shifted to labor movements.

Second, this thesis brings the issue of class struggle back into the debate about long-term development. Incumbent theories have generally placed organized workers and their movements as counter-veiling forces that oppose the efficiency of the economy (i.e., the neoclassical argument), intimidate state policies (i.e., the developmental state argument), and conflict with the expansion of capital accumulation (i.e., the Marxist argument). This thesis argues that, given a specific context, the class struggle accelerates economic development and the evolution of capitalism instead of holding it back.

Third, the thesis arguments incorporate a “dynamic picture” into the varieties of capitalism framework. In prior studies, the literature has emphasized a static, rather than dynamic, picture of

capitalism.⁷ In our case studies, the varieties of developmental labor (VOL) induce different reactions of the state and capitalists. The different reactions then cause different paths of technological upgrading and different trajectories of institutional evolution. Therefore, our VOL models determine the development of capitalism in the long term. Combining these contributions, they bridge two crucial theories together (**Figure I.4**).

Figure I.4: Developmental labor as the theoretical bridge between two theories



A Method and Outline of the Chapters to Follow

Process Tracing

This thesis aims to reveal *the black-box mechanisms* that bridge the developmental state (which emerged during the catch-up phase) and the recent varieties of capitalism in the selected cases (**Figure I.4**). To accomplish this objective, *process tracing* is used as a core methodology to trace

⁷ While Thelen (2004; 2014) tries to resolve this problem, with the studies focusing mainly on advanced economies such as the United States, the United Kingdom, Germany, and Japan, this thesis goes beyond Thelen's efforts by including latecomers in the analysis.

the mechanisms of economic transition and build the theory of developmental labor. Three issues should be elaborated here. The first is the definition of process tracing and its general method of inquiry. The second issue is the distinction between micro- and macro-level mechanisms.

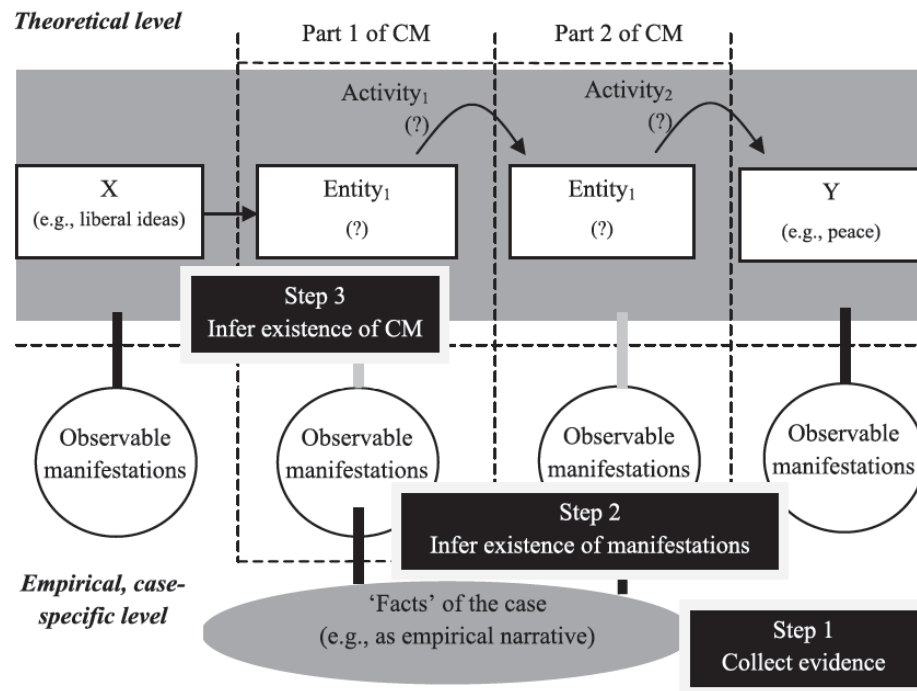
First, process tracing is a qualitative method for evaluating hypotheses about the causes (X) and *mechanisms* (M) of a specific outcome (Y) in a particular case (Mahoney, 2012: 2). “In the causal graph, $X \rightarrow M \rightarrow Y$, mechanisms explain why the causal arrow must exist between X and M and between M and Y ” (Mahoney, 2016: 494). The causal mechanisms have to be derived by observing sets of *intervening events* “that compose a chain of temporally ordered necessary conditions: $X \rightarrow M1 \rightarrow M2 \rightarrow M3 \rightarrow Y$. In such a diagram, the arrows stand for necessity, such that the counterfactual removal of any event would lead to the removal of all subsequent events” (p. 495).

This thesis follows the process-tracing guideline of Beach and Pedersen (2019). This guideline is relevant to the situation when researchers “know that a correlation exists between X and Y but we are in the dark regarding potential mechanisms linking the two (X - Y centric theory building) as we have no theory to guide [us]” (p. 16). As seen in **Figure I.4**, X is the developmental states, which have emerged in South Korea and Taiwan (since the 1960s) and Brazil (since the 1940s) and Y is the varieties of capitalism that have become well established in these economies since the 2000s.

There are three steps of process tracing for building theory (**Figure I.5**). First, this thesis collects historical evidence as clues about the possible manifestations of causal mechanisms between X and Y . The second step is to deduce these pieces of evidence reflecting the existence of manifestations (Beach and Pedersen, 2019: 17). While the whole process of theory-building is inductive, this step has a deductive element in that we use some general logic, principles, and

previous observations to infer the manifestations. Finally, the third step is to infer that the observable manifestations reflect an underlying causal mechanism (p. 18).

Figure I.5: Theory-building process-tracing



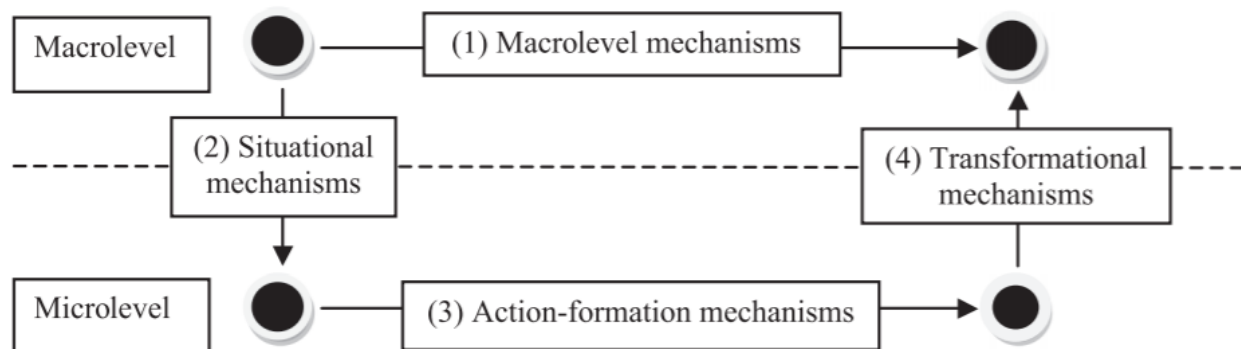
Source: Beach and Pedersen (2019: 17)

There is a difference between the method of inquiry explained in **Figure I.5** and the method of presentation. Although this work initially investigates the historical facts of the case studies and continually conceptualizes them into concrete causal mechanisms, the presentation reverses the process. This manuscript presents the finding causal mechanisms first (see **Figure I.1-3**). Each

step is supported by *causal mechanism observations* (CPOs).⁸ Then, the relevance of the causal model within each selected case will be demonstrated: namely, South Korea, Taiwan, and Brazil.

The last methodological issue concerns the causal linkages between micro- and macro-level mechanisms. “Macrolevel mechanisms are structural theories that cannot be reduced to the actions of individuals” (Beach and Pedersen, 2019: 41). In contrast, “purely microlevel theories relate to how individuals’ interests and beliefs affect their actions and how individuals interact with each other” (p. 42). As illustrated in **Figure I.6**, there are four directions of mechanism: (1) macro-level mechanisms, (2) situational mechanisms (from macro- to micro-level), (3) action-formation mechanisms (micro-level mechanisms), and (4) transformational mechanisms (from micro- to macro-level).

Figure I.6: Levels of causal mechanisms



Source: Beach and Pedersen (2019: 41)

⁸ The first observation is that developmental labor emerges after the developmental state accelerates growth by enhancing labor-intensive industrialization (Figure I.1). Second, developmental labor and its movements create a wage surge and long-term increase in wages, which stimulate changes in the economic practices of capitalists, as well as state policies (Figure I.2). Third, different types of developmental labor movements lead to varied reactions of capitalists, which formulate new labor institutions (Figure I.3). These causal-process observations will be presented in the following chapters, respectively.

This thesis is situated at the middle-ground level in two senses. First, it focuses on the actions of *groups of individuals*, which generally concern the same interests. While the thesis classifies the main economic actors as workers, capitalists, and the state, these actors are varied and have different interactive conditions. For example, the interests of white-collar workers are different from those of blue-collar workers. Second, this thesis draws causal directions from micro-level (*the action-formation*) mechanisms⁹ to macro-level (*transformational*) mechanisms.¹⁰

An Operational Definition of Important Terms and Concepts

Three important concepts need clarification here: developmental labor, high-tech state, and high-tech industries.

Developmental labor is the core concept of this thesis, conceptualized by observing labor movements in the case studies more than five decades after World War II. This concept aims to define the characteristics and economic functions of organized labor movements, in which they can trigger economic advancement in late-coming economies.¹¹ Three characteristics have already been mentioned above. They are (1) complying with capitalism and national growth performance, (2) autonomous movements, and (3) effective bargaining for wages and welfare.

When labor movements have these characteristics, they tend to create three critical contributions to economic development. First, they deliberately push wages up. If they consciously

⁹ In other words, the rise of developmental labor → wage increases → the state-business adjustments → economic upgrading

¹⁰ That is, roles of developmental labor in economic upgrading → institutional evolution

¹¹ It is worth noting that the concept of developmental labor presented in this thesis is different from *the Developmental Labor System* coined by Fred Deyo. Deyo's concept is derived from the labor system rooted in the labor process theory of Michael Burawoy (see Deyo and Agartan, 2003: 6, 21).

concern the overall growth performance of the economy, wage increases are mostly fine-tuning, with their own productivities and profitability of the firms. Second, as a consequence, developmental labor provides productive pressures for adjustments from both the state's policies and business strategies. Third, the degree of militancy and styles of strategic bargaining of developmental labor determine the varieties of trajectory of labor institutions (**Table I.1**).

Table I. 1: Characteristics and economic functions of developmental labor

Characteristics	Economic functions
1. Complying with capitalism and national growth performance	1. Triggering wage increases (and welfare improvement)
2. Autonomy	2. Leading to the state and business adjustments
3. Effective bargaining for better wages and welfare	3. Determining the varieties of trajectory of labor institutions

The high-tech state is a frequently appearing term in this thesis. It is used to emphasize three components of the state, which have successfully reached high-tech and high value-added status. The first component is the existence of government policies that intentionally support technological upgrading and learning. The second is capable business sectors based heavily on high-tech products and high value-added activities. Finally, the third component is the set of institutions and its complementarities that induced economic agents to support technological upgrading. In this thesis, particularly, labor institutions are highlighted.

The last concept needing clarification is *high-tech industry*. According to the OECD (2011), high-tech industry is categorized by average R&D intensities and R&D embodied in intermediate and investment goods.

This definition is used to create four product categories. Low-tech industries are, for instance, wood, pulp, paper products, printing and publishing, food products, beverages, textiles, leather, and footwear. Medium/low-tech industries are building and repairing ships, rubber and plastic products, coke and refined petroleum products, other non-metallic mineral products, and basic and fabricated metal products. Medium/high-tech products are electrical machinery and apparatus, motor vehicles, chemicals (excluding pharmaceuticals), and transport equipment. Finally, high-tech industries are aircraft and spacecraft, pharmaceuticals, computing machinery, radio, TV and communication equipment, and medical, precision, and optical instruments.

This classification is a little stretched in this thesis. First, high-tech industry is relative and bounded to the context of development in our case studies. Right after the dawn of the 1970s, South Korea, Taiwan, and Brazil diverted from low-tech industry to relatively higher stages of the tech ladder. In the 1980s they actively engaged in the learning process and technological upgrading. For them, high-tech industries include both high-tech and high/medium-tech industries in the OECD categories (**Table I.2**). Second, in many circumstances, low-tech industries have high-value parts, and high-tech industries have low-value parts. Entering high-tech industries does not automatically reflect higher values. Therefore, this thesis usually mentions *high value-added*, together with high-tech industries, when it wants to emphasize particular high value-added activities.

Table I.2: Classification of the industries based on technology levels in South Korea, Taiwan, and Brazil

Low-tech industries (1960s)	Medium-tech industries (1970s)	High-tech industries (1980s–90s)
Manufacturing, wood, pulp, paper products, printing and publishing, food products, beverages and tobacco, textiles, textile products, leather and footwear	Building and repairing ships and boats, rubber and plastic products, coke, refined petroleum products, and nuclear fuel, other non-metallic mineral products, basic metals and fabricated metal products	Electrical machinery and apparatus, motor vehicles, trailers and semi-trailers, chemicals, railroad equipment and transport equipment, machinery and equipment, aircraft and spacecraft, pharmaceuticals, accounting and computing machinery, radio TV and communications equipment, and medical, precision, and optical instruments

Source: Modified from OECD (2011)

An Outline of the Chapters

The next chapter will extensively examine the theoretical development, contexts, strengths, and weaknesses of the dominant theories. Chapter 2 will elaborate on the thesis arguments based on empirical observations of the cases, while also explaining the theorized mechanisms from the labor movements to economic catch-up. The body of the thesis will portray the context and preconditions that allow developmental labor to emerge in South Korea (Chapter 3), Taiwan (Chapter 5), and Brazil (Chapter 7). The thesis will also test the theorized mechanisms from developmental labor to economic and institutional transition in South Korea (Chapter 4), Taiwan (Chapter 6), and Brazil (Chapters 8–9), respectively. The last chapter will make a critical comparison between the cases and discuss the further contributions of the arguments.

Chapter 1: Literature Review

In seeking to understand the spectacular phenomenon of the East Asian miracle and Brazil's advancement, there are many candidates to explore. However, this thesis addresses two specific bodies of literature – *the developmental state* and *varieties of capitalism (VOC)*. The former focuses on state–business relations. The second sets out to comprehend the institutional landscapes related to business–labor relations and their complementary effects.

Although these two theories convincingly explain the economic performances of the case studies, they have their own weaknesses. First, the developmental state theory too much emphasizes on active roles of the state and businesses in facilitating and upgrading economies, but neglects the productive roles of organized workers. This ignorance fails to recognize the critical roles of labor especially during the juncture of economic transition from labor-intensive to technology-intensive economies. Second, the VOC approach mainly focuses on forerunning high-income countries such as the United States and Germany; however, it fails to find a consensus about the type of capitalism in South Korea, Taiwan, Brazil. Also, the approach rarely elucidates the institutional evolvement from bad to good sets of institutions.

This chapter will describe all the above details and lay the groundwork for understanding the basis of the thesis arguments presented in chapter 2.

1.1 The Developmental States and State-Business Relations

The Concept of Developmental States

The concept of developmental state emerged in the 1980s within the context of two giants' contestation: the free-market thesis and the world system thesis. The former thesis explained that successful economies supports the free market argument as they gained advantages from international trades (Balassa, 1980).¹² The latter divided this world into core and periphery. It argued that the core – advanced economies – controlled the world's capitalism and exploited periphery countries. Latin American NICs, for example, successfully resisted the peripheralization but they were not capable to move into the core (Gereffi, 1989: 508). While scholars in these two camps fundamentally disagree with each other, they have one common ground that is the states have less power (comparing to the market and international relations of capitalism) to manage their own economies.

The developmental state theory is originated as an alternative at the time of theoretical contestation to insist that the state is critical for explaining successful economies. It was derived from the experiences of East Asian nations, which successfully upgraded their economies and technologies between 1950 and 1990. During this period, according to the World Bank (1993a), Taiwan, Hong Kong, Singapore, South Korea, and Japan experienced some of the highest economic growth in the world. For example, in 1962 Taiwan and South Korea had a per capita income of only \$170 and \$110, respectively. However, in 1986 they increased their income to

¹² For example, during the early stage of industrialization, Korea and Taiwan had no strong labor unions; therefore, their labor markets were flexible and clear. In 1969 there was only a small gap between the operating exchange rates and the hypothetical free-trade exchange rates so that it stimulated the export sector. There were high interest and high saving rates, which support price stability and investment (see Wade, 1990: Chapter 3).

\$3,580 and \$2,372, respectively (Wade 1990: 35). For fewer than four decades, these countries rapidly transitioned from poor to rich countries (Sen, 2013).

Studies on South Korea (Amsden, 1989), Taiwan (Wade, 1990), and Japan (Johnson, 1995) revealed that the state in East Asia actively played promotional roles in economic development, thereby calling it a developmental state. Characteristics of the developmental state were as follows: (1) the top priority of the state action was to develop the economy; (2) the state was obligated to protect private property rights while it intervened in the market; (3) the state directed the market through industrial policies¹³ formulated by capable bureaucratic agencies; (4) the state got involved with numerous platforms in order to consult and coordinate with the private sectors (these coordinating platforms were critical parts of policy design and implementation); and (5) there was high autonomy of government in relation to the private sectors and bureaucrats (Wade, 1990: 25–6).

The capacity of the developmental state depended on what Peter Evans called an *embedded autonomy*. This meant that, on the one hand, the state embedded in the private sectors and obtained detailed information from the private sectors and conducted rationalized decision-making and policies for development (Selwyn, 2009: 163). On the other hand, the state was strong enough to sustain its autonomy and exercised its persuasive and extractive power governing capitalists to upgrade technologies. The latter function guaranteed that the state could implement both punishment and reward with successful and failed beneficial firms (Evans, 1995).

¹³ Rodrik (2004) studied industrial policies in the twenty-first century and concluded that effective industrial policy should: (1) provide incentives for only new activities; (2) have a clear benchmark for success and failure; (3) have a built-in sunset and exit clause; (4) target activities instead of sectors; (5) subsidize only activities that have clear spillover effects; (6) be vested in competent agencies; (7) monitor the subsidizing projects closely; (8) maintain channels to communicate with the private sectors; (9) clearly accept that there is a chance to pick the loser; and (10) be sure that promotion activities have the capacity to renew themselves. All these characteristics are relevant to the developmental state in the sense that they need a strong state to achieve these conditions.

As for Brazil, Evans (1989: 577) initially classified the country as an intermediate state¹⁴ – locating Brazil on a linear spectrum between South Korea’s developmental state and Zaire’s predatory state. He claimed that Brazil could not create an embedded autonomy and merit-based recruitment¹⁵ in the overall bureaucratic system. At most, Brazil effectively created *pockets of competence* and utilized them to collaborate with businesses and deliver industrial policies. Indeed, those competent state agencies made many advancements for the economy, but they were fragile and their survival often depended on the leader of a particular period. In other words, they were not institutionalized into the general capacity of Brazilian governance (p. 578).

More recently, Ricz (2014) and Schneider (2015) defined Brazil as a developmental state because they could not ignore the active and critical roles of the state promoting development. While they recognized that Brazil failed to establish the overall merit-based promotion in bureaucracy, the pockets of competence were sufficient to collaborate with businesses¹⁶ in improving economic growth and technologies. These capable agencies were tested and proven to be sustained after the crisis and privatization of the 1980s. Brazil also had state-owned enterprises that “internalized monitoring and reciprocity and bypassed collaboration between business and government” (p. 1).

¹⁴ Evans (1979: 291) also characterized Brazil as a “semi-periphery” state based on the concept of the core periphery state of Wallerstein. He said, “Using the term is primarily a way of asserting that there is a distinct category of countries that cannot be simply considered ‘peripheral’ and yet are structurally distinguishable from center countries.”

¹⁵ This benchmark was also used to identify the degree of developmental state in Southeast Asia by Doner et al. (2005).

¹⁶ Collaborative functions between the state and business associations in Korea, Taiwan, and Brazil were examined in Doner and Schneider (2000).

Various Origins and Types of Developmental State

The productive relationships between the developmental state and businesses are the critical factor enabling East Asian countries to promote development. The big question is: How did the developmental state and embedded autonomy emerge in the first place? Doner et al. (2005) and Ritchie (2010) argue that the developmental state emerged in East Asia under three conditions, so-called “systemic vulnerability,” which existed simultaneously. First, an external threat meant that the political elites responded in order to survive. Second, the elites needed to broaden their political coalitions to secure their status. This meant that they had to redistribute their controlling resources to new alliances. Third, the elites then considered whether or not they controlled limited resources. If there were abundant resources, they used “easy money” to pay for new allies without economic transformation. In contrast, if there were limited resources, the political elites had to upgrade the economy. Therefore, the state was bound to be “developmental.”

Another question is: Did the developmental state exist only in Northeast Asian economies? Many scholars argued that the concept of the developmental state could be applied to other quickly emerged economies such as Brazil as well as advanced economies outside East Asia, namely, France, Scandinavia (Chang, 2010), Ireland (Riain, 2000),¹⁷ Germany (Weiss, 1998).¹⁸ Block

¹⁷ Riain (2000) investigated the emergence of advanced technology in Ireland after the 1990s and found that the state intervened heavily to support various innovations, especially information technology. However, the state did not use the old-style bureaucratic agencies to deliver a supportive program. Riain then initiated the new concept of *the flexible developmental state (FDS)* and separated it from *the bureaucratic developmental state (BDS)* in East Asia (ibid: 164). In Riain’s model, the state maintained its embedded autonomy in the age of globalization by making the state structure more flexible but still competent. Moreover, in the case of Ireland, the state focused on embedding professional labor and foreign capital into its coordinating platforms instead of narrow groups of domestic capital (ibid: 165). In 2004 Riain replaced the concept of the flexible developmental state with *the developmental network state (DNS)* to emphasize the roles of “network” agencies such as research universities, foreign companies, and communities of experts that a state embeds into a coordinating platform for development (Riain, 2004).

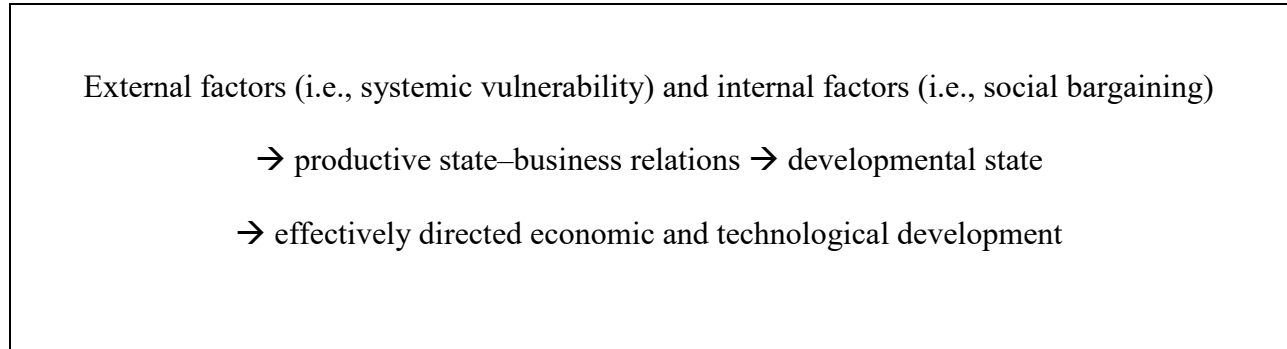
¹⁸ The US case was critical because it was usually referred to as the role model of market-led (and the lesser roles of the state in) economic development. In fact, the US government did more than “targeted resourcing.” It implemented three other important tasks: open window, brokering, and facilitation. “Open window” meant creating a platform for cross-fertilizing ideas. At the frontier of research, unlike an imitation-led strategy of late industrializing countries, it

(2008) also contended that the developmental state had been emerging since the 1970s, even in the United States. For example, the government usually identified challenging technologies and sectors. Then it provided resources to groups with promising ideas. These government agencies, including the military and universities, had a deep understanding of the particular industries that they funded and credibly disciplined over technologists using clear benchmarks of success and failure (p. 172–5).

This broader perspective on how to identify the developmental state leads to wider viewpoints on how the development state emerges beyond the systemic vulnerability. In these advanced economies, social bargaining is a critical source of the state's capacity. In the early 1980s the studies of Peter Katzenstein, Kerry Schott, and John Goldthorpe showed that power-sharing among businesses, workers, and the state was often seen as the key to explicating the state's capacity and economic development (Weiss, 1998: 24). In other words, outside East Asia, it was not just systemic vulnerability that pushed and facilitated the state and businesses to develop. Other social forces, including organized workers, were a part of the explanation.

was hard to predict the result of research and development (R&D), in terms of whether or not it will be commercialized. Thus, the state led hundreds of flowers to bloom. Brokering meant that the state specifically matched multiple complementary research groups to create new products. Finally, facilitation meant that the state provided infrastructures for a particular technology. For example, building roads to support the automobile industry (Block, 2008: 173).

Figure 1.1: The basic proposition of the developmental state



Different Economic Driving Forces

Taiwan, South Korea and Brazil are identified as developmental states, although they do not take a similar path of development. Khan and Blankenburg (2009) claimed that the productive state–business relations possibly led to various ways of organizing and supporting industries, which depended on, at least, antecedent conditions and political settlements among key players at a critical juncture. In South Korea, when Park Chung-Hee took power in 1963, he decided to collaborate with a large conglomerate, *Chaebol*, to develop the economy. In this way, the South Korean economic driving force was large firms rather than SMEs or state-owned enterprises (Veerayooth, 2019: 50).

In contrast, when the Kuomintang fled from Mainland China to Taiwan, some local capitalists settled following the era of Japanese colonialism. The party feared being challenged by these capitalists; therefore, it decided to transform the economy by supporting state-owned enterprises (SOEs) in upstream industries and new small and medium enterprises (SMEs) in downstream industries. Therefore, the state did not concentrate national resources on specific

conglomerates, and at the same time it had to directly allocate resources to support various SMEs (Veerayooth, 2019: 55–6).

According to Evans (1989), Brazil's economic driving force consisted of triple alliances – SOEs, local conglomerates, and multinational companies (MNCs). Brazil had large domestic resources (i.e., land and minerals, potential workers, and potential consumers), which lured MNCs to invest in the country. These MNCs held both the capital and technologies necessary for the further development of Brazil. At the same time, the MNCs could not perform well if they could not link their businesses to local capitalists because the locals had “comparative advantages,” such as local networks, political influence, and local information. Thus, the MNCs and local conglomerates formed alliances.

However, a local–multinational alliance was not sufficient to capture the characteristics of the Brazilian developmental path. The state also played a significant role in two ways. First, it facilitated the MNCs to join local conglomerates in economic development via state regulations. Without this kind of intervention, the MNCs tended to keep core technologies to themselves and didn't share crucial innovations with local partners. Second, the state directly invested in, and facilitated, technological learning in some strategic sectors, for instance, petroleum (Petrobras) and aircraft (Embraer) before these state-owned enterprises were privatized after the crisis in the late 1980s.

Different Development Strategies and Consequences

Different economic driving forces lead to different development strategies and consequences. Wong (1999), Jeon (1995), and Evans (1989) well portrayed these differences in South Korea, Taiwan, and Brazil. These studies will be summarized in the following paragraphs.

The South Korean state allied with big conglomerates. As a result, the state could concentrate its national resources on supporting and disciplining narrow groups of conglomerates for development. This allowed wealthy conglomerates to accelerate learning through largescale production and to invest heavily in R&D. Initially, these firms generally created their own brand and produced final products, which were based on outdated technologies. Then they quickly acquired frontier technologies through patents, as well as in-house R&D. Finally, they utilized cumulative technological capabilities to produce novel products. Wong called this strategy the *reverse product life cycle* (Reverse PLC) (Wong, 1999: 8–19).

This conglomerate-led strategy lifted the national income and technologies really quickly, but there were also negative consequences. First, national resources were directed to supporting specific groups of large companies that controlled businesses across the sectors; therefore, relatively speaking, economic inequality was higher than in other developmental states, such as Taiwan and Singapore. Second, in the short term, there was a trade-off, and the state and businesses needed to weigh growth against price stability. When the growth coalition was very strong, as in South Korea, it preferred the former over the latter. As such, inflation was high (Jeon, 1995).

In Taiwan, the state directly supported SOEs and indirectly supported SMEs via the public research institutions (PRIs). These research institutions provided frontier applicable research and patent licenses, as well as training programs for skilled workers for local SMEs. Under these

conditions, Taiwanese firms chose a relatively low capital-intensive and gradual path of industrial upgrading. They tried to: (1) produce existing products for other companies; (2) acquire technologies of production from others; (3) increase their capability from their experiences of producing; (3) focus on specific parts of the whole supply chain; and (4) upwardly move from sub-contractors to establish their own brand.¹⁹ This strategy was called a *reverse supply-chain strategy*. However, some Taiwanese firms deliberately focused on strengthening the process technology while ignoring the establishment of their own brand. This was called the *process-specialist strategy* (Wong, 1999).

Using these strategies, both SOEs and SMEs gradually upgraded their technologies and increased their profits. Compared to a conglomerate-led strategy, the Taiwanese path produced an equal progress. Between 1965 and 1979, for example, the income inequality of Taiwan, measured by the Gini coefficient, was reduced from 0.36 to 0.31. In South Korea, the situation was reversed and the Gini coefficient increased from 0.34 to 0.40 (Jeon, 1995). As a result of the gradual approach of industrial upgrading,²⁰ Taiwan could control inflation very effectively. After 1985 the consumer price index was rarely higher than 5 percent per year (CEIC, accessed December 15, 2019).

In Brazil, the relationship among economic driving forces is sophisticated; therefore, the upgrading strategies are complex. Evans (1989) explained that the MNCs and local conglomerates

¹⁹ A good example of this is ACER, in the personal computer (PC) industry, which started as an original equipment manufacturer (OEM) and then developed into an original design manufacturer (ODM) by offering a special process that creates more competent production in terms of quality and cost. ACER was then able to establish its own brand and finally became the original brand manufacturer (OBM) (Wong, 1999: 8, 17).

²⁰ This was because of not only the gradual approach to upgrading the economy but also the historical background of the incumbent party. When the Kuomintang was defeated by the Communist Party in Mainland China, it deliberately reviewed the possible reasons for the failure. One of them was excessive inflation, which destroyed trust among people that the government could manage the economy. As a result, the party tried to avoid excessive inflation in Taiwan as far as possible.

always bargained with each other. While the MNCs provided capital and technologies, the local conglomerates offered valuable networks and information to decrease business risks and access local markets. As a result, the MNCs were able to sell intermediate goods and high-tech final products to Brazil. On the other hand, Brazilian firms could learn new technologies and export relatively low-tech products to other peripheral countries. This strategy could be called the “*sub-imperialism strategy* of a semi-peripheral country” (p. 317) or a *joint supply-chain strategy*. Unlike the MNCs and local conglomerates, Evans did not explain much about SOEs. This thesis shall argue, Brazil’s SOEs usually employ the reverse PLC strategy, which focuses on niche products.²¹

These Brazil’s economic spearheads and catching-up strategies were linked to inferior consequences compared to South Korea and Taiwan. First, the MNCs aimed to access the huge domestic market instead of exports. In this case, more foreign direct investments in Brazil led to more imported values (spending on intermediate and machinery products) and a worsening of the trade balance. The report in 1976 referred to by Evans (1989: 316) showed that, “for every 1% growth of the product, the volume of imports must increase by over 2%.” While the state was aware of this problem and tried to increase export values from the 1970s, its efforts were not sufficiently fast and effective to solve the problem.

Brazilian SOE strategies were also different from those of Taiwan, focusing on specific parts of the global supply chain, but trying to make its own final products and services from scratch. In this case, like South Korea, it demanded huge financial resources and gradually created fiscal

²¹ We can use the case of Embraer to illustrate this strategy. In the 1970s Embraer was an SOE focused on producing light aircraft. The company not only supplied certain parts or modules of the aircraft but also made the final product by getting a license – built from an American firm named Piper Aircraft. Embraer quickly shifted to producing more and more sophisticated products such as higher-capacity commercial aircraft and military aircraft, using its acquired learning. The important point was that Embraer never aimed to compete with the two giants – Boeing and Airbus – in the relatively heavy aircraft segment. It focused firmly on a niche market.

deficits year after year. This chronic deficit led to fiscal instability and reduced trust. The state financed its deficits by *seigniorage* (printing money without back-up) and borrowing funds from financial institutions. In this way, inflation and debt increased concurrently. Both the trade and fiscal imbalances reached a critical level in the mid-1980s, causing a crisis (Ayres et al., 2018).

Regarding economic inequality, multinational corporations (MNCs) were rarely concerned with the well-being of local workers. Their main aim was to accumulate a surplus, which tended to create higher inequality than South Korea and Taiwan. In addition, the triple alliance – MNCs, local conglomerates, and SOEs – were repressive and exclusive by default. This excluded not only workers but also small capitalists from the national development framework. Therefore, the redistribution of growth worsened, leading to weak purchasing power among the have-nots. This structural problem slowly but surely exacerbated social tensions and unrest. Macro-economic instability, weak demands, and social tensions pulled the impressive growth from before the mid-1980s back to a moderate level and created the stop-go growth episodes in Brazil.

The summary of differences in developmental paths of our case studies are presented in **Table 1.1**.

Table 1.1: Summary of different developmental paths in South Korea, Taiwan, and Brazil

	South Korea	Taiwan	Brazil
Economic driving forces	Conglomerates	SOEs + medium enterprises	SOEs + MNCs + conglomerates
Strategies for catching up	Reverse product life cycle (reverse PLC)	(1) Reverse supply chain and (2) process specialist	(1) Joint global supply chain/sub-imperialism (2) Reverse PLC

	South Korea	Taiwan	Brazil
Economic outcomes	High inflation, high inequality, high growth	Low inflation, low inequality, high growth	Very high inflation, very high inequality, and stop-go growth pattern

Source: Veerayooth (2014) for the economic spearhead in South Korea and Taiwan, Evans (1989) for the economic spearhead in Brazil, Wong (1999) for catching-up strategies, and Jeon (1995) and Sen (2013) for the economic consequences

In conclusion, these bodies of literature explain the success stories of South Korea, Taiwan, and Brazil by examining the productive relations between the state and leading businesses. Generally, the capable state apparatus, the so-called pockets of competence, actively cooperates with businesses to advance the national economy in terms of per capita income and technologies. While all these economies are broadly identified as the developmental state and enjoy productive state–business relations, the composition of economic spearheads, strategies of catching up, and economic consequences is varied.

Missing Issues and Disadvantages

The developmental state literature disregards two issues, that is: (1) transformative roles of organized workers and (2) the concrete process of economic transformation.

First, the theory neglects the active role of organized workers in economic development. This ignorance is not incidental but it is a part of the basic premise of the theory as well as an initial condition of the cases. As the role of the state and businesses has been highlighted, the state

was deemed to harshly repress workers and destroy autonomous labor organizations in the 1970s (Deyo, 1987).

Second, the theory tends to see stages of development as *continuous processes*. This means that the state governs businesses to accumulate capital and technologies from low to high. Therefore, the theory insists that the strong state that have been established since the 1940s in Brazil and the 1960s in South Korea and Taiwan contributes to the economic expansion in the long-term period. This logic is misleading if one considers stages of development as *discrete processes*. Porter, Sachs, and McArthur (2002) and Ács and Naudé (2011), for instance, argued that the stages of development should be classified as three distinctive stages: factor-driven, efficiency-driven, and innovation-driven. These stages require different business strategies as well as state policies so that the behaviors of key economic players critically change during the transition period.

The developmental state, which is a reasonably important when countries are well below the technological frontier, could become less crucial when countries reach the innovation-driven stage.²² Moreover, as Acemolgu and Robinson (2000) argued, the powerful interest groups fabricated during the early stage usually oppose both structural changes and the introduction of new technologies that reduce their benefits; therefore, the changes are likely to be interrupted. In other words, there is a critical juncture during the transition from one to another stage; the developmental state alone is therefore not sufficient to explain the successful transition.

These issues are well reflected by the statement of Richard Doner. He points that, “The statist view is incomplete. Politics, in the sense of both instrumental pressures and broader

²² For example, during the innovation-driven or technology-intensive phase, the state has less power vis-à-vis other social forces. As such, the state tends to be transformed into the regulatory state, which has fewer intervening manners.

coalitional constraints, is critical to even strong state interventions” (Doner, 1992: 426). Also, “The further one moves into the industrialization process, the more critical *nongovernmental institutions* become” (p. 427). However, it is unfortunate that Doner shifts his attention toward the business institutions instead of labor organizations. These theoretical gaps are partly be fulfilled by *an institutional argument* elaborated in the next section. However, we shall see, the active roles of developmental labor are still underrated.

1.2 Institutions and Varieties of Capitalism (VOC): The Good, the Bad, and the Ugly

Institutions and Development

When people talk about *the institution*, they usually begin with a definition coined by Douglass North: “institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interactions” (North, 1990: 3). However, “this broad definition of institutions is both an advantage and a curse” (Acemoglu and Robinson, 2010: 3). It is the advantage because it opens many possible choices for investigating and understanding the cause of economic development. Yet, it is the curse because those causes could be nearly everything such as property rights (North and Weingast, 1989: 803; Knack and Keefer, 1995), barriers to entry (Djankov et.al., 2002), and the governance and patron-client structures (Khan, 2007, 2010).

As in the famous quote by Tolstoy, “Happy families are all alike; every unhappy family is unhappy in its own way,” many scholars have tried to find the best unique feature of good

institutions that closely explains the successful nations. Acemoglu and Robinson (2012) called them *an inclusive institution*, which included democracy, property rights, and the non-existence of monopoly (Vries, 2013: 191). Khan (2010) offered another concept that is *a growth-enhancing institution*. According to Khan, although some institutions led to rent-seeking behaviors and the uncompetitive market, they simultaneously generated growth and technologies. While Acemoglu and Khan establish different concepts of the good institutions, the core idea is that the ideal set of institutions could be coherently conceptualized into a single form.

Recently, Hall and Soskice (2001)²³ discovered something different, namely, that developed countries have various models of good institutions. This is called the varieties of capitalism (VOC). The VOC was one of the influential concepts in the studies of the comparative political economy after the 2000s (Menz, 2017: 18). It has, at least, three additional contributions for the institutional argument. First, it confirms that there are more than one set of economic institutions, which create high-growth and high-tech economies. Second, it then provides new implications such as an institutional advantage, which explains various kinds of technological upgrading. Finally, these sets of institutions complement each other so that they are durable. The VOC thesis lately becomes the mainstream.²⁴ This section will unpack this concept of the VOC and utilize it to explain the successful development of our case studies.

²³ Before Peter Hall and David Soskice, there are other scholars who study varieties of capitalism. For example, Michel Albert showed that at least two capitalist systems exist in developed countries. They were Anglo-Saxon (i.e., the USA) and Rhenish (i.e., Germany, the Netherlands, and Switzerland) (Albert, 1993). However, at this point, this thesis will not review all the prior development of the field.

²⁴ Later, Daron Acemoglu and his colleagues too accepted the divergence thesis that is more than one coherent and persisted model of economic institutions exist among highly developed countries (Acemoglu et.al., 2012).

The Good: Liberal and Coordinated Market Economies

Hall and Soskice (2001) explained, there are two ideal cases of capitalism that is performing well: the liberal market economies (LMEs), characterized by the United States of America; and the coordinated market economies (CMEs), represented by Germany. To understand the difference, they mentioned five critical domains: (1) the financial system; (2) intra-firm governance; (3) industrial relations and labor protection; (4) skills formation; and (5) inter-firm relations. In successful cases, these five areas operate consistently and enhance one another to promote economic advancement, so-called “institutional complementarity.” The different characteristics of LMEs and CMEs are presented in **Table 1.2**

Table 1.2: A summary of characteristics of two ideal types of VOC

Institutional Domains	Characteristics	
	<i>LMEs</i>	<i>CMEs</i>
(1) Financial system	Access to finances based on public financial data and current return; tolerance for mergers and acquisitions	Does not entirely depend on current returns and have a kind of "patient capital" that allows firms to aim for long-term goals
(2) Intra-firm governance	Unilateral power; focuses on assessable dimensions of companies' performance that affect share prices and profitability	Rarely has the capacity for unilateral action and biases toward consensus decision-making; focuses less on profitability
(3) Inter-firm governance	Arms-length relations and formal contractual basis; technological transfers are accomplished by licensing	Close relationship via business associations; the association promotes technological diffusion by working with officials and associations

Institutional Domains	Characteristics	
	<i>LMEs</i>	<i>CMEs</i>
(4) Industrial relations	Competitive and flexible labor market; easily hires and fires workers; low union density	Protective labor market; companies utilize labor organizations to advance productions; a wage settlement
(5) Training and education	Focus on building general skills rather than industrial-specific skills	Focus on industrial or even firm-specific skills instead of general skills; vocational schools are very important

Source: Hall and Soskice (2009: 38-45) and Hall and Gingerich (2009)

In LMEs, firms access financial sources only if they perform well in terms of current returns. The intra-firm governance also evaluates managers based on explicit criteria related to profits and share prices. In this competitive market, firms cooperate with one another through arms-length and contractual relations. In the labor market, labor is less protected and labor unions are discouraged, which lead to a flexible labor market and high turnover rates. Because workers encounter a very flexible labor market, they prepare themselves by acquiring general rather than specific skills. These elements reinforce one another in very sophisticated ways.

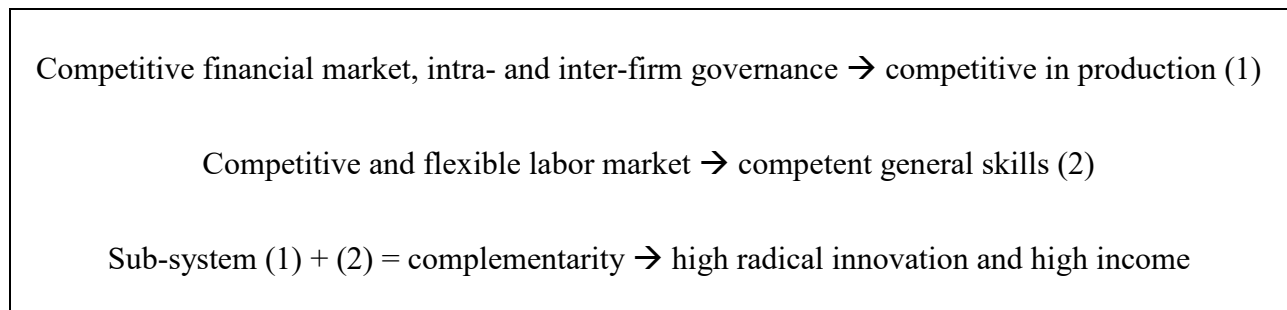
Hall and Soskice separate technologies and innovations into two types.²⁵ First, there is *radical innovation* that consists of substantial shifts in production lines, the development of entirely new products, or major changes in production processes. Second, there is *incremental innovation*, “marked by continuous but small-scale improvements to existing product lines and

²⁵ In the original paper, Hall and Soskice links *radical innovation* with particular sets of industries such as first-moving technology sectors (i.e., biotechnology, semiconductors, and software development), as well as complex system-based products (i.e., telecommunication, defense systems, and service sectors such as airlines and entertainments). In contrast, incremental innovation is relevant to capital goods (machine tools), consumer durables, engines, and specialized transport equipment (Hall and Soskice, 2009: 52–3).

production processes” (p. 52). According to the above institutions, LMEs are highly supportive of radical innovations because workers are equipped with general skills and firms are easily sought for mergers and acquisitions. So, firms can access new industries or produce entirely new products by purchasing new companies (p. 54).

Broadly speaking, a competitive financial system, and intra- and inter-firm governance of LMEs, lead to competitive production behaviors. At the same time, the competitive and flexible labor market, coupled with the general training system, create generally skilled workforces. Then, competitive production and workforces complement one another to produce a high-income and high-technology society via radical innovations (**Figure 1.2**).

Figure 1.2: The simple institutional complementarities of LMEs



In contrast, as seen in **Table 1.2**, the financial system of CMEs does not depend on current returns. It provides ample room for managers to fine tune other objectives such as productivity and market shares. Therefore, firms in CMEs are not too sensitive to short-term benefits. The corporate governance generally provides less unitary power to managers; therefore, they tend to find a consensus in daily management and prefer collective actions. Among firms in the same industry, they usually found an association and cooperate closely for research and development.

The labor market of CMEs is protective and cooperative. It supports labor organizations to a large extent because firms can gain mutual benefit via collective negotiations. For example, peaceful wage settlements limit inflation. Moreover, labor unions help to preserve employment and productivity during economic downturns.²⁶ Because the labor market is protective and the turnover rate is low, workers have more incentives to invest in specific industry skills. Firms also have more incentives to invest in specific skill training.²⁷

These coordinated features of both firms and labor relations lead to a special type of innovation. Hall and Soskice argue that “coordinated market economies should be better at supporting incremental innovation.” The rationale is that, “it will be easier to secure incremental innovation where the workforce (extending all the way down to the shop floor) is skilled enough to come up with such innovations, secure enough to risk suggesting changes to products or process[es] that might alter their job situation, and endowed with enough work autonomy to see these kinds of improvements as [a] dimension of their jobs” (p. 53).

Simply speaking, the high patient–capital financial system, industrial associations, and intra-firm governance in CMEs stimulate companies to cooperate and share efforts to develop their sectors. At the same time, protected and cooperated labor relations lead to long-term employment and higher investment in specific industry, or even specific firm, skills, from both workers and employers. These characteristics reinforce one another to produce high technologies via

²⁶ For instance, workers can accept lower wages and decrease working hours in exchange for continued employment. In this case, firms proportionately decrease supplies to match the decreasing demand and preserve skilled workers until the recession passes. However, this strategy is feasible only if managers and workers negotiate effectively with each other. In most cases, it is more effective when workers are organized and their representatives can command all of the union members, so they can make a credible deal with managers.

²⁷ In addition, close relationships within each industry via a business association lead to fewer incentives for poaching. Across firms, they usually conduct joint research and development projects. So, they are already sharing information and knowledge.

incremental innovation, which, in the long term, determines higher incomes. These are presented in **Figure 1.3**.

Figure 1.3: The simple institutional complementarities of CMEs

Coordinated inter-firm relations and consensus-based governance → cooperated management (1)

Cooperated, protected, and flexible labor market → competent industrial-specific skills (2)

Sub-system (1) + (2) = complementarity → high incremental innovation and high income

The Bad: Hierarchical Market Economies and the Outlier

As Hall and Soskice clearly explain, the objective of the varieties of capitalism (VOC) approach is “to elaborate a new framework for understanding the institutional similarities and differences among the *developed countries*” (Hall and Soskice, 2009: 22). The concept is rarely discussed with developing countries. Ben Ross Schneider is a pioneer who fulfilled this gap by examining economies in Latin America. In the first instance, he tries to map Latin American economies to either LMEs or CMEs; however, this ultimately produces another different kind of capitalism called hierarchical market economies (HMEs).

HMEs consist of four characteristics.²⁸ First, they are led by diversified business groups, which often invest in subsidiaries that have fewer market or technological relations to one another

²⁸ Unlike Evans (1989), Schneider (2013: 78) does not mention the state as part of the economic driving force because it focuses mainly on Brazilian situations after the 1990s, when the state had already privatized many SOEs. During that period, there was market-switching. The MNCs sold many domestic businesses to local conglomerates. At the same time, the MNCs brought privatized SOEs into their portfolios. In this case, the state’s direct economic influence declined. However, the state maintained “the golden share” in those SOEs for veto voting.

(Schneider, 2013: 10). Furthermore, they are tightly managed by family members of the major shareholders. Second, HMEs also depend heavily on the investment of MNCs. For instance, the four largest countries in Latin America have foreign direct investment (FDI) as a percentage of GDP, approximately 16 percent. This rate is far higher than South Korea (2 percent) and Thailand (10 percent). Moreover, “the share of MNCs in the sales of the 500 largest companies in the region ranged from 30 to 40 percent for most of the 1990s and 2000s” (p. 11).

Third, the labor market is segmented and atomistic because “most workers have fluid, short-term links to firms, and ephemeral and or no horizontal links to other workers through labor unions” (p. 11). For example, Latin American economies, on average, have lower job tenure and union density (3 years and 15 percent, respectively) than LMEs (5 years and 28 percent) and CMEs (7.4 years and 45 percent) (p. 12). Fourth, and finally, workers in HMEs have a low level of education and vocational skills, meaning that most Latin American economies hardly upgrade their technologies and productions.

All four domains are complementary. The MNCs dominate sectors that are rarely concerned with technological transfers since they want to get ahead by keeping secret formulas near headquarters. Diversified businesses are divided into capital-intensive and labor-intensive industries. Only the former employs significant shares of skilled workers. This phenomenon reinforces the segmented labor market. Low investment in technologies, from both MNCs and conglomerates, leads to lower demand for skills, which also discourages workers from investing in education. With a low level of technology and skills, HMEs cannot not produce high long-term national incomes.

Brazil is a part of Latin America, although it remarkably manages to deviate from the inferior outcomes of HMEs.

First, the MNCs gradually transfer their technological capability to local subsidiaries and lead local engineers to develop new processes and products. For example, the Brazilian automotive sector is dominated by MNCs – GM, VW, Ford, and Fiat. They were drivers of export growth in the 1970s (Rodrik, 1993: 20), which reflected the technical progress of their local plants. In the 1980s Fiat adopted the just-in-time approach from Japan and further increased its competitiveness (Montero, 2001: 67). In the 1990s and 2000s, GM gradually granted responsibility to GM Brazil to develop a new model of cars (Consoni and Quadros, 2006: 9), which reflected its capability to innovate new products.

Brazilian conglomerates, like other capitalists in HMEs, usually expand businesses to unrelated industries in order to exploit the economy of scope. This strategy helps firms to avoid market risks (Schneider, 2013: 54), especially in relation to commodities, prices, and inflation. However, Brazilian firms also invest in technologies and R&D. For instance, “by 2000s, some business groups were using sophisticated computer models to calculate precisely how countercyclical investment in a new sector might be, as well as to generate an overall indicator of a group’s protection from market volatility” (p. 55). This largely explains why the Brazilian informatics sector flourishes and invests heavily in R&D (p. 67).²⁹

Regarding business associations, since the late 1930s, the state wanted to establish state corporatism and endorse industrial association. The Federation of Industries of the State of Sao Paulo (FIESP) was founded in 1931. With Rio de Janeiro and Rio Grande do Sul it formed a new

²⁹ *Itau*, for example, spent on average 2.8 percent of its total sales value on R&D. Another impressive firm was *Vale* (mining), which spent 3 percent a year on R&D (p. 66). As a result, Brazilian private R&D was higher than elsewhere in the region (Schneider, 2013: 67). Another example was the *Votorantim Group*, which created various products, including cement, aluminum, pulp, and paper, and even orange juice. Although their production technologies and markets were quite different, they needed, and invested in, common knowledge to work out how to transport and process millions of tons of input and output (p. 55).

association named the Industrial Confederation of Brazil in 1933. It then changed its name to the Confederation of National Industry (CNI) in 1939. Vargas, one of the most important presidents in Brazilian history, worked closely with CNI (Gozetto and Thomas, 2014) and other national associations.³⁰ The sectoral associations were broken down into several segment associations in the 1990s. A bilateral and vertical coordination replaced the multilateral and horizontal coordination (Schmitz, 1999: 1634). That is to say, Brazilian firms in the 1990s formed pockets of coordination or segmented coordination to upgrade some parts of industries. Indeed, these show that intra-firm relations of Brazil are different from CMEs and LMEs, but Brazilian firms still try to find their own ways of coordinating and upgrading.

In industrial relations, Brazil's union density (17.8 percent) is not comparable to CMEs, but it is higher than many countries in the region such as Chile (13.6 percent) and Mexico (11.2 percent) (Bensusán, 2016: 157). Although Brazilian workers have low job security, the job tenure is on a par with LMEs (five years in 2001). Unlike many others in the region, Brazil develops unemployment insurance for workers. This not only helps to provide welfare for fired workers, but it also gradually decreases the informal sectors because workers who take out the insurance do not need to hurry to find new precarious jobs when they are laid off.

Finally, the quantitative and qualitative expansion of education, on average, is limited. For example, a mean reading score of Brazilian students (412 point) measured by PISA is on a par with the region score (413 points). It is lower than Chile (449 points), Mexico (425 points), and

³⁰ At sectoral level, however, the influence and conduct of associations were varied and inconsistent over time. For example, in the 1960s and 1970s, local business associations in the shoe industry such as the Novo Hamburgo Industrial and Trading Association (ACI/ NH) played crucial roles in making trade fair and bringing foreign buyers into the industrial shoe cluster. However, the sectoral associations declined in the 1980s because of a conflict of interest. For example, manufacturers wanted to access more cheap input from abroad, but suppliers needed to defend the domestic input markets (Schmitz, 1999: 1642). There were many efforts to bring back sectoral associations; however, they failed.

much lower than OECD countries (493 points) (Schneider, 2013: 98). However, many well-educated and highly skilled workers are employed by capital-intensive MNCs, high-tech SOEs, and modern services (i.e., banking and telecommunication) (p. 118).³¹ These well-trained workers are supplied by state-sponsored institutions.

Table 1.3: A summary of characteristics of HMEs and Brazil

Institutional domains	Characteristics	
	<i>HMEs</i>	<i>Brazil as the outlier</i>
(1) Intra-firm governance (MNCs)	Rarely concerns with technological transfers and focuses on seeking domestic market or low-skilled workers	The MNCs mainly invest in capital-intensive sectors; the state helps to facilitate technological capability transfers (i.e., automobiles and computing)
(2) Intra-firm governance (conglomerates)	Diversifies for economy of scope and decreases business risks; low level of R&D	Invests in technologies commonly used in diversified industries (i.e., Votorantim and Correa); high level of R&D (i.e., Vale and Itau) compared to neighborhoods
(3) Inter-firm governance	While LMEs and CMEs are competitive and cooperative, ³² HMEs are either monopolistic or oligopolistic, which lead to collusive behavior	Influential business associations had been established since the 1930s, but the influence of the sectoral associations is varied and inconsistent over time ³³

³¹ These capital-intensive, high-tech, and service sectors pay very well for limited supplies of skilled workers and create a high wage premium for school years or certified skills (Schneider, 2013: 122). It then gradually pulls economic inequality upward. We will discuss the details of this later.

³² It is not necessary to have small numbers of producers in the industry. Many producers can cooperate via sectoral associations. That is the point of cooperative relations. In contrast, oligopolistic relations are based on limited numbers of producers who can jointly determine market prices and manipulate super-normal profits.

³³ Also, some sectors (i.e., beer and cement) have a lesser market concentration than Chile and Mexico. *Ambev*, for instance, the largest beer producer in Brazil, occupies 63 percent of the market share. This is lower than Chile (*Luksic*), where the largest producer controls 86 percent (Schneider, 2013: 69).

Institutional domains	Characteristics	
	<i>HMEs</i>	<i>Brazil as the outlier</i>
(4) Industrial relations	Labor union is low-density and weak; a median job tenure is very short (three years); and there is an absence of unemployment insurance	Similar to HMEs, the union density is not comparable to CMEs. The median tenure is on a par with LMEs (five years). However, Brazil has unemployment insurance and high labor protection index
(5) Training and education	Low level of education, training, and skills measured by various indicators such as schooling years, level of education, and PISA scores	It depends on sectors. In capital-intensive (i.e., steel and paper) and service sectors (i.e., banking and telecommunication) they employ many skilled and highly educated workers

Source: Summarized from Schneider (2013), Evans (1989), and other sources mentioned in the texts

In conclusion, on the one hand, Brazil has some similar characteristics to HMEs.³⁴ On the other hand, as this thesis closely examines above, Brazil manages to escape inferior outcomes within these HME institutions. The state facilitates the MNCs and pushes conglomerates to develop their own technologies and invest in R&D. While sectoral associations decline, the new forms of coordination (i.e., bilateral and vertical) develop quickly. Last, but not least, even if supplies of skilled and educated workers are limited, firms adjust their strategies to lure educated workers into some strategic industries.

³⁴ For instance, the MNCs and conglomerates play significant roles in economic development. The sectoral business associations continually decline. Labor relations could not match CMEs and the turnover rates of workers are similar to the flexible labor market. Finally, the quantity and quality of education were limited.

In other words, Brazil is the outlier of the region, and there should be further, more systematic, re-examination of how this phenomenon takes place and what is the right label for Brazil. At the very least, it should be defined as the successful case of the HMEs, whereby it fruitfully exploits “institutional advantages” to generate income and technology. At the most, it should be redefined as a new type of capitalism. The point is that Brazil inspires us to think about how countries consisting of hierarchical market economies escape their initial inferior institutions. This phenomenon also happens in East Asia.

The Ugly: Mixed Market Economies, South Korea, and Taiwan

Of 195 existing countries in the world, many belong to neither the good (LMEs and CMEs) nor the bad (HMEs) type of capitalism. For example, in their original paper, Hall and Soskice mention that Southern European and Mediterranean countries such as Spain, Italy, and France are neither LMEs nor CMEs. However, they are obviously developed, have relatively high per-capita income, and are also different from HMEs. Later, scholars call them a mixed market economy (MMEs) (Molina and Rhodes, 2007).

In the broad sense, when scholars discuss MMEs, they are referring to three features. First, these economies consist of a mixture of institutional characteristics from LMEs and CMEs. Moreover, scholars cannot easily classify them into a distinct type of capitalism. Second, the growth performance of MMEs is mostly underachieve, in relative terms, since they gain less institutional complementarities and advantages than the ideal cases (Hall and Gingerich, 2009). Third, therefore, the state usually plays an important role in the fulfilment of institutional gaps and

bringing all of the economic actors together via policies (Hancké, 2007: 7). Hence, they advance national incomes and technologies even if they lacked institutional complementarities.³⁵

Outside Southern Europe and Mediterranean areas, there is another group of developed economies – namely, Japan, South Korea, Taiwan, and Singapore – that could not be straightforwardly matched to the conventional classification of capitalism. Roughly speaking, these economies are matched with the criteria of the MMEs mentioned above (i.e., high national incomes and high state intervention). Still, the MMEs concept is too broad and cannot provide deep analytical implications for these varied economies.

One way to escape from unsuitable classical types of capitalism and overly broad MMEs is to identify a unique East Asian type of capitalism (as Schneider does with Latin America). Two important works will be described here.

First, Carney (2016) studies East Asian capitalism by focusing on the “pre-industrial origins” of the cases. According to Carney, during the pre-industrial period, all East Asian economies are compatible with HMEs. After Hong Kong, South Korea, Singapore, and Taiwan encounter systemic vulnerability, they gradually develop as *encompassing HMEs*.³⁶ In other cases, such as Indonesia, Malaysia, the Philippines, and Thailand, they do not face systemic vulnerability; therefore, the political elites conduct extractive practices and develop extractive institutions. These economies are then named *extractive HMEs* (p. 140).

³⁵ There were rich debates about MMEs in Europe, especially for internalizing the state back into the VOC framework. However, this was not the focus of this section, so those pieces of literature have not been discussed here.

³⁶ He blends developmental state theory with the VOC approach by hypothesizing that systemic vulnerability is the cause of the encompassing behaviors of the state. Then, the encompassing (aka. developmental) state enables firms to move toward high incomes and technology. Carney also creates sub-types of ideal cases in Asia by separating the encompassing HMEs into: (1) family market economies (FMEs) represented by Korea and Taiwan; and (2) the state market economy (SMEs), represented by Singapore. However, in this work, I have not used Carney’s interpretation beyond encompassing HMEs.

Another brilliant example is Walter and Zhang (2012), which interestingly study East Asian economies by internalizing the state's roles into the VOC framework. First, they consider whether or not the state plays extensive roles in economic development. Second, they evaluate the degree of social coordination of economic action. Based on these variations, they create four typologies of Asian capitalism: (1) co-governed, (2) state-led, (3) networked, and (4) personalized (Table 1.4).

Table 1.4: Variations in the national model of economic governance in Asian capitalism

		Social coordination of economic action	
		<i>Strong</i>	<i>Weak</i>
State organization of the economy	<i>Extensive</i>	Co-governed	State-led
	<i>Modest</i>	Networked	Personalized

Source: Walter and Zhang (2012)

These types of capitalism are mapped onto critical dimensions of capitalism. As illustrated in Table 1.5, both South Korea and Taiwan in the 1980s are characterized as *co-governed market economies*.

Table 1.5: Core features of East Asian varieties of capitalism

Institutional domains	Characteristics of Asian Capitalism			
	<i>Co-governed</i>	<i>State-led</i>	<i>Networked</i>	<i>Personalized</i>
(1) Financial system	State-guided but with business influence; largely bank-based but better developed capital markets	Heavily state controlled; dominance of debt finance	State-influenced but significant business input and influence; bank-based but more important capital markets	State-controlled but heavy private influence; relation-oriented finance; poorly developed equity markets
(2) Intra-firm governance	Concentrated ownership	State ownership in SOEs; ownership concentration in private firms	Modestly high ownership concentration	Ownership and management centralized
(3) Inter-firm governance	Medium to low (if vertical integration is high)	Rare and sporadic	Extensive, institutionalized, and facilitated by industrial associations	Limited or primarily based on personal linkages

Institutional domains	Characteristics of Asian Capitalism			
	<i>Co-governed</i>	<i>State-led</i>	<i>Networked</i>	<i>Personalized</i>
(4) Industrial relations	Relatively weak unions; limited collective bargaining; longer-term employment; employment protection and welfare benefits confined to workers in large firms	Strong unions but concentrated in SOEs rather than private firms; limited bargaining; long-term employment	Relatively powerful unions; firm-based bargaining but with informal coordination through national organizations; internal labor markets characterized by long-term/lifelong employment	Fragmented and very weak unions; no/little collective bargaining; unstable and short-term employment; better welfare provision in SOEs; public funded but very limited in private firms
(5) Training and education	Strong vocational training	Public funded training was quite extensive in SOEs; limited in private firms	Firm-specific training	Very weak in-firm training
National cases (in the 1980s)	South Korea and Taiwan	China, Malaysia, and Indonesia	Japan	The Philippines and Thailand

Source: Modified from Walter and Zhang (2012)

Superficially, the findings of Carney (2016) and Walter and Zhang (2012) are inconsistent and differed. In fact, they are consistent and complementary if we consider that these works explain South Korea and Taiwan at different times. During the pre-industrial period, East Asian economies began their institutional settings as HMEs. Afterwards, encompassing actors collaborated with one another to upgrade the economy. Gradually, these efforts during the early industrializing period caused institutional evolvement toward encompassing HMEs or co-governed market economies in the 1980s.

In summary, the VOC approach advances institutional arguments explaining successful stories of South Korea, Taiwan, and Brazil in at least two ways. First, it portrays coherent sets of institutions in each particular type of capitalism. In other words, it pushes institutional arguments beyond narrow meanings of the institution (i.e., property, market, and political regimes). Second, it provides new analytical concepts such as institutional complementarities (which explain the durability of the system), institutional advantages (beyond comparative advantages), and different types of innovation aligned with types of capitalism. However, there are at least two shortcomings related to the case studies.

First, most of the studies concentrate on Western capitalism and the forerunners of economic development (i.e., European, American, Scandinavian countries). Only a handful of works focus on the successful latecomers in Latin America and Asia. Among these limited studies, their findings are inconclusive. For instance, Dodgson (2009) studied Taiwan and South Korea in the late 1990s and early 2000s. He identifies Taiwan as an LME, but likens South Korea to something else, which does not easily fit the conventional dichotomy. Some works are too much emphasize the plurality of capitalism (Witt and Reading, 2013; Andriessse, 2014: 8). Some studies even classify one country, one type of capitalism in Asia.

Second, the VOC approach mainly focuses on the static features of the variety of capitalism, and the institutional transformation is not accounted for very well (Menz, 2017: 73). Of course, prominent scholars such as Kathleen Thelen and James Mahoney are working on the dynamics of VOC; however, the applications are again limited to European cases and Japan (Mahoney and Thelen, 2010). Among these studies, they return to pay attention to the state-business interactions. Hall and Thelen (2009: 16) well summarizes this point, “A good deal of the process of institutional adjustment in the developed economies can be understood as a *pas de deux* between firms and governments in which each responds to different pressures but has to cope with the moves made by the other sides”.³⁷ Still, the active roles of labor are not yet getting critical attention.

These drawbacks and solutions will be addressed again in the next chapter.

³⁷ Apart from the dynamics of the VOC concept, many scholars studies the dynamics of political and economic institutions in general. They are, for instance, Daron Acemoglu, James A. Robinson, Douglass North, John J. Wallis, and Masahiko Aoki.

Chapter 2:

Thesis Arguments and Developmental Labor

As stated clearly in the aforementioned literature, the developmental state theory and VOC approach are debated and accumulate knowledge decade after decade. They provide excellent explanations for the successful development. However, there are three theoretical gaps that this thesis set out to fill and improve upon, namely: (1) the roles of organized labor in catching-up processes; (2) varieties of organized labor (VOL) as a determinant of diverse catching-up strategies; and (3) the endogenous evolvement of labor-related institutions. These three thesis arguments directly improve both the developmental state and the VOC approach by giving them the missing link that is the roles of developmental labor.

2.1 The State Made Developmental Labor and Developmental Labor Triggered the High-Tech State

Stages of Development and Struggles of Economic Transformation

As Justin Y. Lin explains, economic development is not just a process of resource allocation for maximizing short-run economic efficiency, but it is “a process of structural transformation” (Lin, 2017: 5) with technological and industrial upgrading. The *structural transformation* reflects that the process is discrete rather than continual, although the classifications of the changes may vary. For example, one says that the economy regularly evolves from labor-intensive to capital- and technology-intensive (i.e., Chandra et.al., 2013: 52; Marconi and Rolli, 2008: 1). Others consider the transforming path as shifting from factor-driven to efficiency-

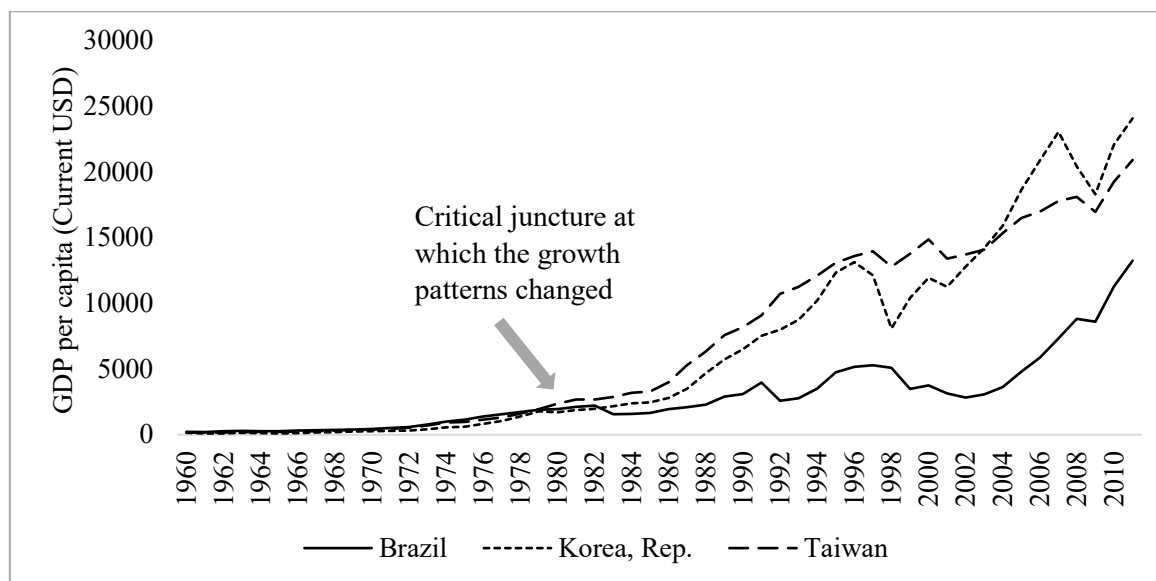
driven, and then to innovation-driven (Porter, Sachs, and McArthur, 2002; Ács and Naudé, 2011).

The common ground of these structural classifications is that all economic players significantly shift their activities to focus more on technologies and innovations overtime. Once the country develops a technology-intensive economy, the long-term growth pattern changes to a higher rate.

According to **Figure 2.1** and **2.2**, we shall see the sign of structural transformation in the case studies. The patterns of income per capita in South Korea and Taiwan have taken off since the early-1980s. Empirical data of patent recorded from the US Patent and Trademark Office (USPTO) provides supportive evidence. The patent granted by USPTO in South Korea and Taiwan exponentially increased from insignificant numbers in 1980 to more than two thousand cases in the late-1990s (Miao et.al., 2018).³⁸ Regarding the same figures, Brazil encountered the glass-ceiling of growth in the 1980s and was entrapped into the crisis in the 1990s. However, during the crisis, many big companies in Brazil silently developed technological capacities, which were realized as soon as the economic stability resumed in the 2000s (Dantas and Bell, 2009; Consoni and Quadros, 2006; Hira and Oliveira, 2007).

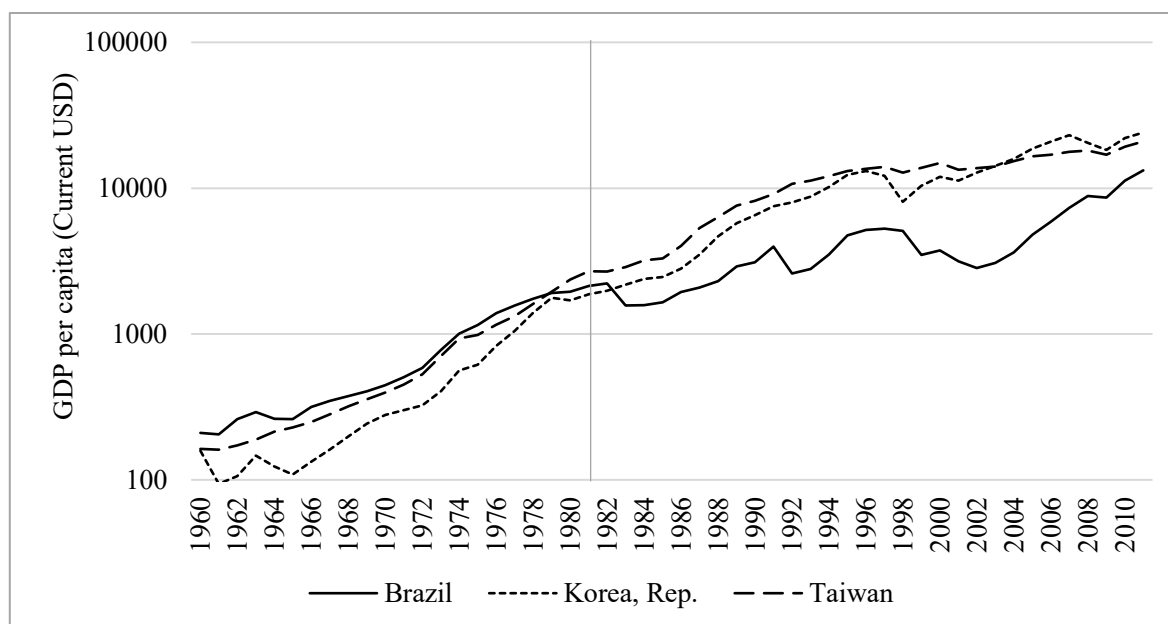
³⁸ The developmental state theorists recognized and emphasized the progress of East Asian nations in terms of technologies in the 1970s, although those activities could not be comparable to what happened in the 1980s and the 1990s. Korea, for instance, was not just a fast follower or fast learner in various highly technology-intensive products anymore, but Korea advanced and pioneered them (i.e., digital TV). In this stage of development, at the technological frontier, practices of the state, capitalists, and workers significantly and abruptly transformed.

Figure 2.1: GDP per capita (current USD) in Brazil, South Korea (Korea, Rep.), and Taiwan from 1960 to 2010



Source: Databases from the World Bank, National Statistics Republic of China (Taiwan), and International Monetary Fund (accessed November 19, 2019)

Figure 2.2: GDP per capita (current USD) in Brazil, South Korea (Korea, Rep.), and Taiwan, 1960–2010, logarithm scale



Source: Databases from the World Bank, National Statistics Republic of China (Taiwan), and International Monetary Fund (accessed November 19, 2019)

The structural transformation requires contemporaneous adjustments among economic players, namely, the state, capitalists, and workers. Though, the process is not naturally and effortlessly happened because it tends to be interrupted by economic and political losers who fabricate benefits within the old structure. For instance, capitalists who develop their business empires in labor-intensive industries are reluctant to adjust the business structures. To a large extent, shifting to technology-intensive productions creates transformative costs and risks. Also, the state and political elites who link closely to those businessmen do not want to risk their political supports by allowing new groups of industrialists to emerge (Acemoglu and Robinson, 2000). These lead to coordination failures in economic transformation (Chang et.al., 2002: 376).

If both the state and capitalists are not capable of (or, at least, do not easily) transform economic structure by themselves, how economic transformation in our case studies is taken place? This thesis argues that the answer lies in *developmental labor*.³⁹

The Developmental State Made Developmental Labor

Paradoxically, the developmental state itself declines because of its own success in the prior period. For example, South Korean conglomerates that flourished in the 1970s became strong economic players and accumulated resources much enough to bargain more powerfully with the state in the 1980s. As such, the state's power vis-à-vis capitalists declined. "Since the late 1980s the chaebols increasingly came to the view that the South Korean state had become more of a liability than an asset in their competitive struggle in the world market" (Chang and Evans, 2000: 30-33).

³⁹ Recent works have provided new pieces of evidence leading to new understandings of labor organizations in Korea (Koo, 2000; Nam, 2009; Liu, 2015), Taiwan (Chiu, 2002; Liu, 2015), and Brazil (Antunes and Wilson, 1994; Reithof, 2004).

Nevertheless, as mentioned above, these strong businesses have low incentives and high costs of adjustment so that they do not automatically upgrade industries. In contrast, they tend to utilize their power to maintain the economic rents resulting from a well-established industrial policy. Therefore, scholars who try to find the cause of economic transformation by looking into businesses' adjustment alone get lost. Instead of businesses, the developmental state creates another autonomous agency – the organized workers – during the process of economic development.

This is counter-intuitive especially when we read from the statist's perspective. For instance, scholars usually evaluated that, in the 1970s, South Korea and Taiwan based their economic competitiveness on cheap labor. Unions were also weak and existed as an arm of the government. However, this view is not relevant to the situation in the 1980s, when South Korea, Taiwan, and some highly developed industrial sectors of Brazil had rapidly diverted from labor-intensive industrialization, and cheap labor was not the major comparative advantage of the countries anymore.

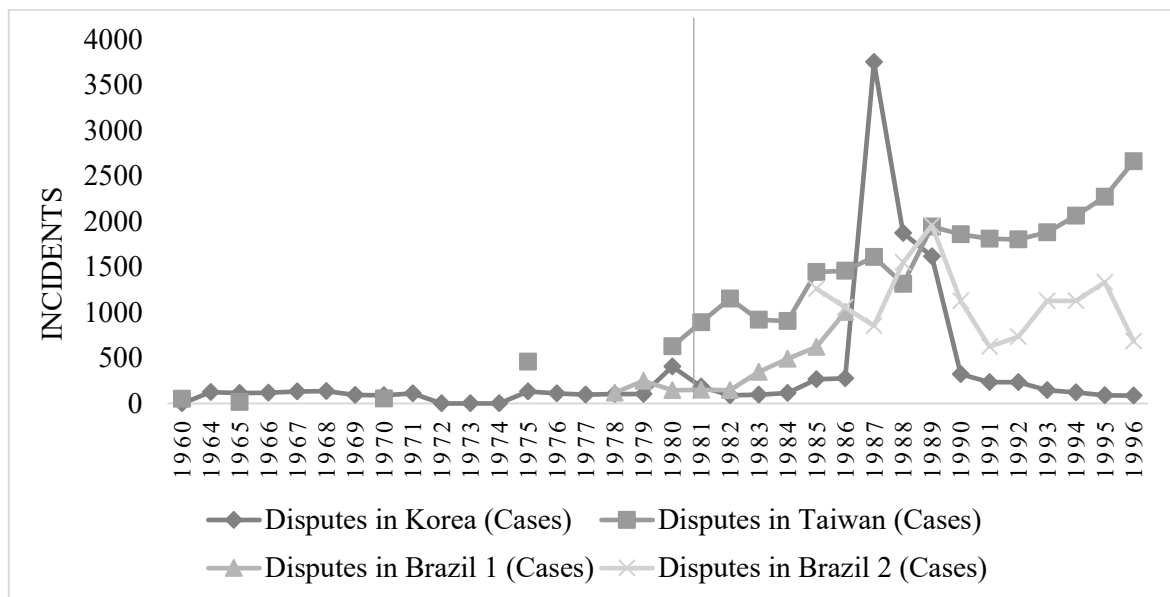
While a frequency of labor disputes in our case studies radically increased after 1980 (**Figure 2.3**), in fact the autonomous grass-roots movements of organized workers had been strong enough to oppose the repressive practices of the state and businesses since the early 1970s (Deyo et.al., 1987: 51).⁴⁰ For example, in South Korea, progressive labor movements had formulated strongly in the early 1970s; however, they were repressed harshly so that it was near zero case in 1972. Nonetheless, this repressive policy could not castrate the rise of

⁴⁰ In the 1970s, labor movements incrementally emerged and the situation was far from what statist's view portrayed. For example, a young Korean worker named Jeon Tae-il committed self-immolation in protest against bad working conditions in 1970. During the same period, labor movements in the ship-building industry campaigned for living wages and effectively bargained for higher incomes. In Taiwan labor disputes spontaneously increased in the mid-1970s. In Brazil industrial workers organized actively from the late 1940s; however, their movements concentrated on small numbers of industrial cities. In the late 1960s the state decided to repress organized workers in urban areas, although rural unions expanded radically in the 1970s.

organized workers in South Korea. The labor disputes speedily revived and rose to 407 cases in 1980 and it exploded to more than three thousand cases in the late 1980s.

Similarly, Taiwanese labor disputes jumped from about 54 incidents in 1970 to 626 incidents in 1980 and astonished to 1,860 incidents in 1990. In Brazil, labor disputes happened in urban areas increased from 144 cases in 1980 to more than one thousand incidents in the mid-1980s. Afterward, the frequency reached approximately 1,956 cases in the late-1980s. Indeed, democratic movements in South Korea, Taiwan, and Brazil during the period also supported and created a chance for these organized workers to leverage their bargaining agendas.

Figure 2.3: A frequency of labor disputes in South Korea, Taiwan, and Brazil, 1960-1996



Source: Collected from various sources⁴¹

⁴¹ Koo (2000) for South Korea, Chiu (2002) for Taiwan, Antunes and Wilson (1994) for Brazil 1, and Reithof (2004) for Brazil 2. It should be noted that the Brazil 1 is collected from only urban areas, so it is underestimated. Also, the Brazil 2 data is estimated by using monthly median strikes multiply by 12.

Developmental Labor Triggered the High-Tech State

These organized workers in South Korea, Taiwan, and Brazil actively demanded higher public welfare and wages, which disrupted the national comparative advantage that was then based solely on low-wage labor. Responding to this structural change, both capitalists and the state must install more advanced technologies to increase value-added and to create new kinds of competitive advantages. As a result, these organized workers should be seen as the trigger of structural transition toward higher technological level and economic growth. Therefore, this thesis calls them as *developmental labor*.

As detailed in the chapters 3-4, real, non-agricultural wages in South Korea quickly increased between 1974 and 1979. The increased real labor cost in the second half of the 1970s was crucial because, “while it took English workers seventy years to raise their real earnings by roughly 150%, South Korean manufacturing workers achieved a comparable gain in about 20 years (1955-1979). In just one decade, 1969-1979, real wages in South Korea rose by more than 250%” (Amsden, 1989: 197). This radical change in labor costs created the necessity for industrial upgrading and escaping from labor-intensive industries. As such, both the state and South Korean conglomerates evolved suddenly in the 1980s.⁴²

In Taiwan, real wages increased steadily from 1974 to 1984. While the pace was not as fast as in South Korea, the earnings of Taiwanese workers grew faster than other high-growth latecomers, such as Argentina, Mexico, and India. Moreover, the state also complemented wages with a generous welfare scheme. This situation shaped both industrial policies and

⁴² For example, the state supported R&D in the semiconductor and electronics industries via ETRI in the mid-1980s. While Korea controlled zero shares of the global D-RAM market in 1983, its market share increased to 30 percent in 1995. Also, national spending on R&D per GDP was around 0.5 percent before 1980, but it improved from 0.56 percent in 1980 to 1.72 percent in 1988. Both total numbers and private shares of patent applications were significantly raised just after 1983 (Lee, 2009: 10). Tertiary-level enrollment increased from just 10 percent in 1980 to more than 30 percent five years later (p. 18). All of this rough evidence shows that Korea transformed into a high-tech economy just after the great jump of labor costs in the late 1970s.

capitalist production into becoming more technology-intensive. For example, government expenditure on higher education had never been more than 20,000 NT\$ before 1981. Within a decade, it increased more than four times to around 80,000 million NT\$ in 1991 (Wang, 2003: 280). The state imported technologies into Taiwan and diffused them to private firms through public research institutes (i.e., ERSO).⁴³

In Brazil, real wages increased slightly between 1945 and 1962 (Colistete, 2007), which stimulated various capital-intensive industries under the Goal Plan. It is worth mentioning that, before the mid-1970s, the real wages of Brazilian workers grew faster than in South Korea and Taiwan. Although Brazilian real wages stagnated and declined for four years from 1964 to 1967, they quickly recovered and increased between 1968 and the late 1970s (Macedo, 1977). With almost thirty years of increasing real wages, and with only brief interrupting periods, the government and domestic firms were consciously concerned about advancing industrialization.⁴⁴

Brazilian states and firms could not maintain technological development and industrial upgrading in the 1980s largely because of macro-economic instability and hyper-inflation. However, all of the high-tech industries and high value-added activities that had developed since the 1970s (i.e., petroleum exploration, aircrafts, automobile, and informatics) have still been operating as economic spearheads until today.

⁴³ Taiwanese firms also collaborated with ERSO to create the semiconductor and electronics industries in the early 1980s. In 1984 a company named UMC began to invest in R&D to create its own D-RAM technology. In the late 1980s other important companies, TSMC, Winbond, and Hualon, started advancing the integrated circuit (IC), CMOS memory, and S-RAM (Chen and Sewell, 1996). At the same time, companies such as Syntek and Holtek focused on circuit design, which is a human-capital-intensive activity. Private shares of national expenditure on R&D increased significantly from 41.8 percent in 1982 to 54.2 percent in 1990 (Hsueh et al., 2001). All other indicators such as patent applications increased in the mid-1990s.

⁴⁴ For instance, in the 1970s, Petrobras – a leading company in the energy industry – invested heavily in technological transfers, ranging from a wet Christmas tree to a flexible line and riser. These investments led to ultra-deep-sea exploration in the 1980s. The government also initiated an aircraft industry in 1969. With support from public agencies, IMBEL and CTA, a leading Brazilian aircraft producer – Embraer – advanced its technology very quickly between 1970 and the mid-1980s. It began by producing a small jet aircraft in 1971 and then shifted to producing a 30-passenger turboprop in 1984 (Hira and Oliveira, 2007). In the computer industry, the first mini-computer named the Ugly Duckling was created since 1972 (Langer, 1989).

In conclusion, while the developmental state and good state–business relations basically determined patterns of development in the 1960–70s, organized labor played a critical role as a trigger of changes in the 1980s. It was organized labor, who demanded higher wages and successfully forced the state and businesses to adjust not only wage rates but also investment patterns. While the state switched policies to support high value-added activities and R&D, business groups needed to upgrade their technologies in order to cut costs and increase productivity.

2.2 Varieties of Developmental Labor (VOL) and Varieties of Labor

Institutions

The second theoretical gap concerns how to understand different paths of catching up from an organized-labor perspective. This thesis argues that, although developmental labor similarly triggers the transformation in our case studies, the characteristics of labor movements vary and cause diverse paths of economic catch-up. This argument is twofold: (1) the varieties of developmental labor (VOL); and (2) consequences of VOL.

Varieties of Developmental Labor

Our case studies entail three types of developmental labor: militant, compromise, and bifurcated.

In South Korea industrialization was concentrated in some urban areas, particularly three large cities. This initial condition provided leverage for organized labor in two ways. First, because of the geographical concentration, firms quickly drained a pool of labor in industrial areas. As such, employed workers had high bargaining power for higher wages in exchange for

higher working hours or productivity. In addition, firms needed to increase wages to hire new workers from further afield. Second, industrial workers could organize and exchange information more easily than in low-density areas. Under these favorable conditions, organized labor had an advantage for active mobilizing.

Although South Korean workers gained advantageous conditions to mobilize, both the state and firms oppressed them harshly. This was obvious in the case of private firms located in industrial areas, which needed to repress all efforts to increase wages initiated by organized labor to maintain their profits. Furthermore, because the state derived its stability partly from those strategic industries, it had an incentive to control organized labor and support existing firms in order to maintain the export competitiveness. The geographical concentration too allowed the state to do this by sending police to control labor movements, even in production plants.

These mentioned countervailing forces led to intense contestation in the 1970s. Indeed, the frequent labor disputes in South Korea resulted in between 96 and 135 incidents during 1960–75. Compared to Taiwan, the frequency is not high; however, the total number of workers involved in South Korea is extraordinary (see **Table 2.1**). During 1978–81, approximately 108,414 workers participated in labor movements. This equated to around 181 workers per dispute and 2,868 involved workers per million populations. These figures reflect an extremely high militancy of organized labor in South Korea, especially within the context of an authoritarian regime.

All indicators related to the frequency and militancy of organized labor drastically increased between 1986 and 1989. The total number of workers involved increased to around 1.6 million. The number of participants per dispute and per million populations also increased to 224 and 40,300 persons, respectively. In conclusion, South Korean organized labor chose

militancy as its prime strategy; and this has two consequences. First, wages in South Korea increased very quickly compared with other cases. Second, the strategy forced both the state and firms to apply labor-saving technologies and techniques to cope with the militant organized labor. These responses would determine the paths of development that are discussed in the next part.

Table 2.1: Numbers of total involved workers and involved workers per dispute in South Korea, Taiwan, and Brazil, 1978-1989

	Total involved workers		
	<i>South Korea</i>	<i>Taiwan</i>	<i>Brazil</i>
1978-1981	108,412	15,687	-
1986-1989	1,684,534	113,589	9,649,338
	Involved workers per dispute		
	South Korea	Taiwan	Brazil
1978-1981	181	9.5	-
1986-1989	224	17	8,528
	Involved workers per million populations		
	South Korea	Taiwan	Brazil
1978-1981	2,868	886	-
1986-1989	40,300	5,722	67,337

Source: Collected from various sources⁴⁵

In Taiwan the initial condition was slightly different. To start with, the state did not fully trust the conglomerates who used to serve the colonial government, tending to break large firms and support relatively new and smaller firms. Development was dispersed in terms of

⁴⁵ The data on total workers involved and workers involved per dispute is collected from Liu (2015), Chiu (2002), and Reithof (2004). Demographic data of Korea and Taiwan is employed from the World Bank (accessed January 8, 2020). Demographic data of Taiwan was employed from the CEIC database (accessed January 8, 2020).

investment and locations. Moreover, the state implemented a kind of corporate labor regime – it patronized workers via generous welfare channels in exchange for a peaceful labor market. Under these conditions, industrial workers paid higher costs to exchange information and establish cross-plant unions. Therefore, when workers mobilized, their strategy was moderate and probably prompted cooperation if compromising deals were offered.

All these conditions led to a moderate movement in Taiwan during 1970s-80s. As seen in **Table 2.1**, the militancy of organized labor in Taiwan is substantially lower than in South Korea. Only 886 workers in million populations participated in strikes during 1978–81, which accounted for only 30.9 percent of South Korea. During 1986–89, while the number increased to 5,722 workers per million populations, this accounted for just 14.2 percent of South Korea. Based on this evidence, the Taiwanese labor movements are relatively moderate and willing to compromise.

It should be noted that the term “moderate” was relative when compared with South Korea. However, if we considered the Taiwanese case relative to its own time horizon, the degree of militancy improved continually. Therefore, it affected the attitude of the local elites, policies, and the firm’s strategies. First, as in South Korea, wages were adjusted to cope with higher spontaneous labor movements. While the pace of wage increases did not accelerate equal to the South Korean case, it gradually improved through the decades. Second, because the Taiwanese labor movements cooperated more readily, the state and firms tended to choose technology and techniques that were labor-complementing, instead of labor-saving, in relation to the catching-up process.

Brazil represented the most sophisticated case. On the one hand, like South Korea, Brazil was an enormous country that concentrated its initial investment and industrialization on very limited areas connected by railroads, which provided a better chance for organizing

among industrial workers. On the other hand, similar to Taiwan, the state tried, as far as possible, to create a corporate labor regime, centralizing labor organizations and formulating moderate labor unions. These conditions led to neither militant nor moderate organized labor, but rather *bifurcated labor movements*, a complex mixture of characteristics from the Brazilian model.

There was a mixture of partisan (a cooperative wing) and militant (a popular wing) labor organizations. Most labor unions, especially in the early phase of labor movements, were partisan, though the militant labor unions played crucial roles in mobilizing in critical areas. For example, organized workers focused their movements on big cities, where most industrial clusters were located. In addition, they usually mobilized from strategic industries such as textiles, steel, and automobiles. These groups of militant movements (which might not even represent the majority of operating unions) had an impact on the Brazilian politico-economy.

Although the Brazilian unions do not mobilize too often, when they mobilize they set out to make it both great and radical. For instance, in the early 1970s, approximately 10,000 workers in the Villares steel plant declared a strike against overtime (Almeida and Lowy, 1976: 117). In a single case, there was approximately 30 percent of the average number of participants in each dispute in Taiwan during 1978–81. Furthermore, in the late 1980s, the militancy of Brazilian unions reached unimaginable levels. It mobilized around 9,649,338 workers per year, 8,528 workers per incident, and 67,337 involved workers per million populations (**Table 2.1**). Between 1978 and 1986, newly emerging groups of labor, such as people on a mid-range salary, rural church allies, and service-sector workers, actively joined the militant movements.

In conclusion, even if many unions in Brazil operate under the corporatism regime (like Taiwan) established since the Vargas government and expanded in the authoritarian periods,

militant and autonomous unions (like South Korea) grew dialectically.⁴⁶ These militant movements pushed real wages up until the late 1970s; however, wages declined in subsequent periods because of macro-instability (excessive inflation and economic recession). Consequently, both labor-saving and labor-complementing technologies are preferred, but they are applied to different sectors.

Different Paths of Development

According to our case studies, high degree of militancy generally provoked firms to do two options in response. First, firms were more likely to utilize capital than labor in the upgrading process. For example, firms would tend to stay in capital-intensive sectors for longer. In addition, they possibly focused on more capital-intensive parts of high-tech supply chains. Second, firms employed technologies that could replace militant skilled workers.

Indeed, skilled labor is a broad concept, covering both university-trained and vocational technicians (Schneider, 2013: 114). Mostly, militant labor is more relevant to the latter than the former type. As such, firms prefer to develop industries that are based more on university-educated persons than technicians. Those industries therefore are based their technological capability on R&D and a central laboratory instead of incremental improvement at shop-floor level.

Provoked by a highly militant movement, firms tended to develop toward a *labor-saving path* defined by the above two features. In contrast, if the militancy of the labor movement was low, firms were more likely to compromise (or even cooperate) with organized

⁴⁶ Indeed, these contradictory features of labor movements can also be seen in other countries; however, it is more crucial when it happens in a large country such as Brazil because the numbers in each part (cooperated and militant) are very large in absolute terms and significantly affect real politics in the country.

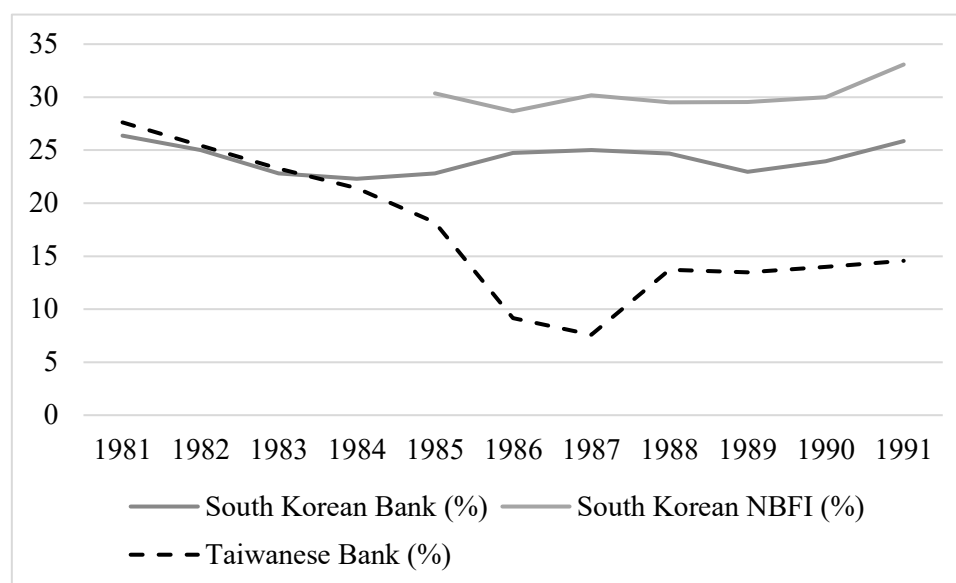
labor in catching up. Therefore, relatively speaking, they engaged in the more skilled labor-intensive sectors, and they upgraded productions by fully utilizing all types of skilled worker, including technicians. I shall refer to the latter as a *labor-complementing path*. In other words, “there is *process heterogeneity* even for the same products” (Andreoni and Chang, 2017: 180). These are described in **Table 2.2**

Table 2.2: Two possible paths for development conditioned by the degree of militancy of organized labor

Labor-saving path	Labor-complementing path
Less coordination between businesses and labor	More coordination businesses and labor (sometimes the state was a mediator)
Stay longer in capital-intensive industries	Shifted more quickly into knowledge-intensive industries based heavily on skilled workers
Applied labor-saving technologies	Applied labor-complementing technologies
University-educated workers are preferred over vocational technicians	Vocational technicians are preferred
Business-labor relation is more compatible with radical innovations	Business-labor relation is more compatible with incremental innovations

This argument can be explored more fully by looking at the experiences of South Korea and Taiwan, which have very different characteristics. Because South Korean organized labor was more militant than in Taiwan, South Korea tended to stay longer in, and depended more heavily on, capital-intensive sectors such as steel and chemical industries than Taiwan. Even in the 1980s, when both South Korea and Taiwan had already shifted to supporting technology-intensive sectors, particularly electronics, South Korea was still very supportive of the HCIs measured by the allocation of loans presented in **Figure 2.4**.

Figure 2.4: Share of loans allocated to HCIs (% of total loans) by domestic banks and non-bank financial intermediaries (NBFI) in South Korea and Taiwan, 1981–91



Source: Chen and Ku (2000: 120-122)

Table 2.3 shows the export ratio categorized by industrial product. The ratio broadly represents two things. First, the higher export ratio means the surplus of production over domestic consumption. Second, the higher ratio also means that the country is efficient enough to compete with others in the global market. As illustrated in the table, it is clear that in the 1990s South Korea was more competent than Taiwan in exporting capital-intensive (labor-saving) products. Relatively speaking, Taiwan was more competent in producing and exporting high-technology goods, which required less capital-intensive (and more labor-complementing) products.

Table 2.3: Export ratio classified by industry between South Korea and Taiwan in the 1990s

Industry		South Korea	Taiwan
High capital-intensive sectors	Chemical	22.54	8.56
	Iron and steel	14.26	6.79
High-technology intensive sectors	Machinery	11.66	51.94
	Computer	49.80	81.65
	Consumer electronics	37.66	70.75

Source: Chen and Ku (2000) ⁴⁷

Consider consumer electronics, which significantly motivated both Taiwanese and South Korean firms in the 1990s, South Korea focused on fabricated wafers and assembly plants, which required huge start-up costs and physical capital intensity. By contrast, more than half of Taiwanese firms in the 1990s were technical design houses, which required highly skilled labor intensity and lower start-up costs (Chen and Sewell, 1996). Moreover, Taiwanese firms fully utilized and absorbed all of the experienced workers via the Weibo system – the deepening supply chains linked national-level large companies to small and medium-sized companies in towns and villages (Skoggard, 1996). There was no comparable system in South Korea. ⁴⁸

⁴⁷ Based on an interpretation of this table, for instance, when Korea has an export ratio of approximately 22.54% in the chemical industry, Korea produces around 77.46% for the domestic market.

⁴⁸ In terms of R&D, Korea is a kind of capital-led R&D and Taiwan is a labor-led R&D. This is confirmed by statistics collected by Schneider (2013: 116), which show that Korea has R&D budgets that are higher than Taiwan, measured by R&D per GDP (3.2% versus 2.5%). However, Korea employs only 3.8 researchers per thousand people, which is less than Taiwan, which employs 8.9 researchers per thousand people (around 2.3 times higher than Korea).

In terms of education, South Korea focused its supply of skilled labor on highly educated workers rather than well-trained technicians in contrast to Taiwan. As **Table 2.4** shows, in South Korea the percentage share of students who graduated from an academic route increased from 56 percent in 1955 to 63 percent of total students in 1988. In Taiwan, during the same period, the share decreased from 52 percent to 32 percent. The picture differed in the case of vocational students, which continually declined in South Korea but increased in Taiwan.

Table 2.4: Balance between vocational and academic high school, percentage share of students

Year	Taiwan		South Korea	
	<i>Academic</i>	<i>Vocational</i>	<i>Academic</i>	<i>Vocational</i>
1950	53	47	n.a.	n.a.
1955	52	48	56	44
1960	52	48	62	58
1965	60	40	59	41
1970	50	50	53	47
1975	39	61	58	42
1980	34	66	55	45
1985	32	68	59	41
1988	32	68	63	37

Source: Cheng (1992-3: 62)

Cho and Yoon (2012) concluded that, “South Koreans still acknowledge the higher education as an indispensable step for social mobility,” which is the university-based meritocracy (p. 2). In Taiwan, the government imposed 180 degrees opposites from Korea by “expanding vocational education at the expense of general education (‘vocationalisation’)” (Lauridsen, 2008: 450).

This phenomenon is also relevant to a co-evolution of firm-side industrial structure. In South Korea, where firms had to pay more attention to “capital” completed with more educated workers, it led to a greater market concentration. As seen in the domination of Chaebol – the large local conglomerate – in various industries. In Taiwan, where militancy and wage increases were moderate, existing enterprises faced little pressure to save labor and to capitalize via scaling up. This provided room for SMEs to utilize technicians joining the supply chain together with the large enterprises. In this way, there had been a complementarity and consistency between labor movements and firm adjustments.

All these examples reflect how South Korean firms respond to highly militant organized labor by entering into a relatively labor-saving path and evolving into a larger company. Together, moderate organized workers in Taiwan lead to a development that consists of a labor-complementing path driven by smaller companies. However, this conclusion might not automatically apply to the case of Brazil, where the organized labor movement was more sophisticated and bifurcated.

In Brazil, labor movements took three decades to expand their coverage from the industrial sectors (1960s) to rural–agricultural–church allies (1970s), and to the mid-range-salary and service sectors (1980s). In order to maintain the long marches and huge campaigns, they imposed a militant movement. The scale of each incident was much higher than in South Korea, which led to an application of labor-saving sectors and technologies. In strategic sectors such as oil exploration, aircraft production, and the MNC-led automotive sector, they mostly valued capital and highly educated (less militant) workers over blue-collar technicians. For instance, in Brazil, the wage premium of a college degree was 150 percent,⁴⁹ even higher than in the USA.

⁴⁹ The wage premium is the gap between paying for a college degree and a high-school degree. It is around 70 percent in the USA and 40 percent in France (Schneider, 2013: 122).

At the same time, local conglomerates (which hired informal workers⁵⁰ via outsourcing services) that focused on domestic markets tended to flourish in relatively labor-intensive sectors. For example, Camargo Corrêa, Andrade Gutierrez, Sadia, and Perdigão – 4 of the 10 largest domestic firms in Brazil – were labor-intensive businesses (Schneider, 2013: 118). However, this did not mean that they made no technical and technological progress. Following the rise of rural labor movements in the 1970s, incomes in rural areas increased substantially. Because domestic firms employed large numbers of rural workers and indirectly took costs from domestic input, their operating costs increased and stimulated labor-intensive firms to evolve.

These companies survived by imposing two strategies. First of all, they increased their diversification to other sectors (including a more capital–labor ratio) and became large conglomerates. When they expanded their economy of scope, they encountered another problem, namely, risks from market volatility. Therefore, they employed specialists and procured computing methods to precisely predict “how countercyclical investment in a new sector might be, as well as to generate an overall indicator of a group’s protection from market volatility”⁵¹ (p. 55). These efforts, in combination with bad transportation, helped these conglomerates to grow and control regional markets with low competition (p. 50).

⁵⁰ Brazil has a very large informal sector. According to analysis based on a household survey (1992–2004), around 64 percent of the economically active workforce are informal workers (Hanley et al., 2009). According to total labor force data from the World Bank, approximately 55.9 million of 87.3 million workers are informally employed. Comparing to formal workers, these informal workers tend to work in the agricultural sector and have lower schooling years, lower wages, and shorter tenure. For example, in 1981 around 61 percent of informal workers were earning below the minimum wage (only 7 percent in the case of formal workers) (Soares, 2004: 5).

The informal sector is another world that exists parallel to the formal, high-paid manufacturing sectors. When Korea and Taiwan experience healthy stress (i.e., labor-cost-push pressure), they transform to a higher-tech economy led by a handful of industries. The result is good enough to upwardly pull other parts of the country forward. However, in the case of Brazil, where militancy and wages adjust unequally, and the large informal sectors absorb low-paid-employed persons, progress as a whole meet with inertia and dilution. Even during the period of wage increases, many firms could continue their businesses by operating in the informal rural sector, with cheaper labor costs, and making fewer technical improvements – there is no need to talk about technology.

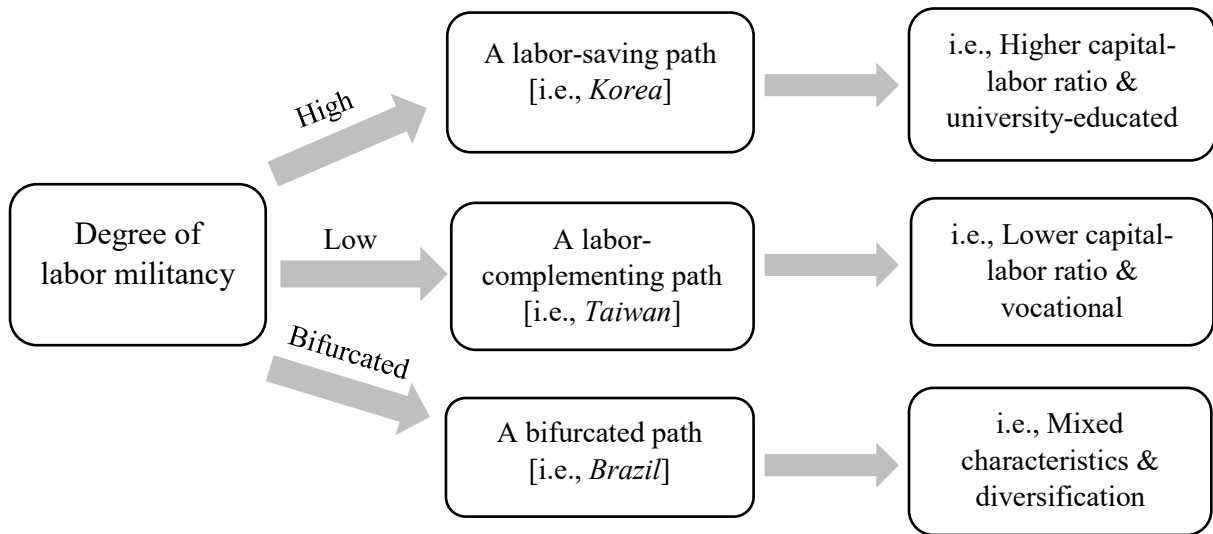
⁵¹ Schneider interviewed the manager of the Camargo Corrêa group in 2006, who also said that “if we had stayed only in construction, we’d be dead by now” (Schneider, 2013: 49).

In this way, while initially they step into the labor-intensive sector, in the long term they accumulate more capital and make more technical progress. In the 1990s, when privatization was the new normal in Latin America, Brazilian firms also sold non-core or non-profit businesses to foreign firms. For instance, *Votorantim* sold two subsidiaries named *Cana Vialis* and *Allelyx* to *Monsanto*. At the same time, some capable firms bought other potential companies from neighboring countries. For example, *Camargo Corrêa* acquired a leading company in the cement industry of Argentina named *Loma Negra* (p. 78).

In brief, unlike South Korea and Taiwan, Brazil had the bifurcated characteristics of labor movements (both militant and cooperative existed). These bifurcated features determined how the Brazilian economy created dual-track development. On the one hand, it walked in a labor-saving path that adopted labor-saving technologies, hired academically educated workers, and had a higher capital–labor ratio. They included, for example, Petrobras, Embraer, and the MNC-led automotive industry. On the other hand, the labor-complementing path was too paved by many domestic conglomerates, especially in food, construction, and other labor-intensive businesses. These sectors also required different characteristics of skilled labor.

All these paths can be portrayed in **Figure 2.5**.

Figure 2.5: Three paths of development consisted with South Korea, Taiwan, and Brazil



2.3 Sub-system Analysis: How Labor-related Institutions Evolve?

This section focuses on how organized labor determine institutional changes. First, I shall explain how the labor institutions of developing countries consist of HMEs. Second, I will illustrate how organized labor triggers an institutional transition. The third and final points of this section will illustrate three *institutional trajectories* of all the case studies. South Korea simulates a competitive labor market that consists of LMEs, known as *simulated LMEs*. Taiwan continually transforms the economic system and depends heavily on networking from various economic actors, so it is called *simulated NMEs*. Finally, Brazil’s labor institutions diversely evolve toward the bifurcated market economies (BMEs).”

An initial institution and its complementarities: HMEs

Most of the developing countries initially industrialize by utilizing their most abundant resource, namely, labor. Through this process, labor and other raw materials are mobilized into a labor-intensive production and generate rapid economic growth. Because they industrialize

belatedly, the latecomers focus on relatively low-quality and cheap industrial products, and this cost competitiveness leads to cut-throat business.

In order to maintain cost competitiveness, the state and businesses generally try to repress wages for as long as possible. They also control labor organizations (i.e., unions), which are the foundations of workers' bargaining power. During this stage, the state usually has limited fiscal resources so it unhurriedly expands educational services and provides labor welfare (i.e., unemployment funds and other legal protection).

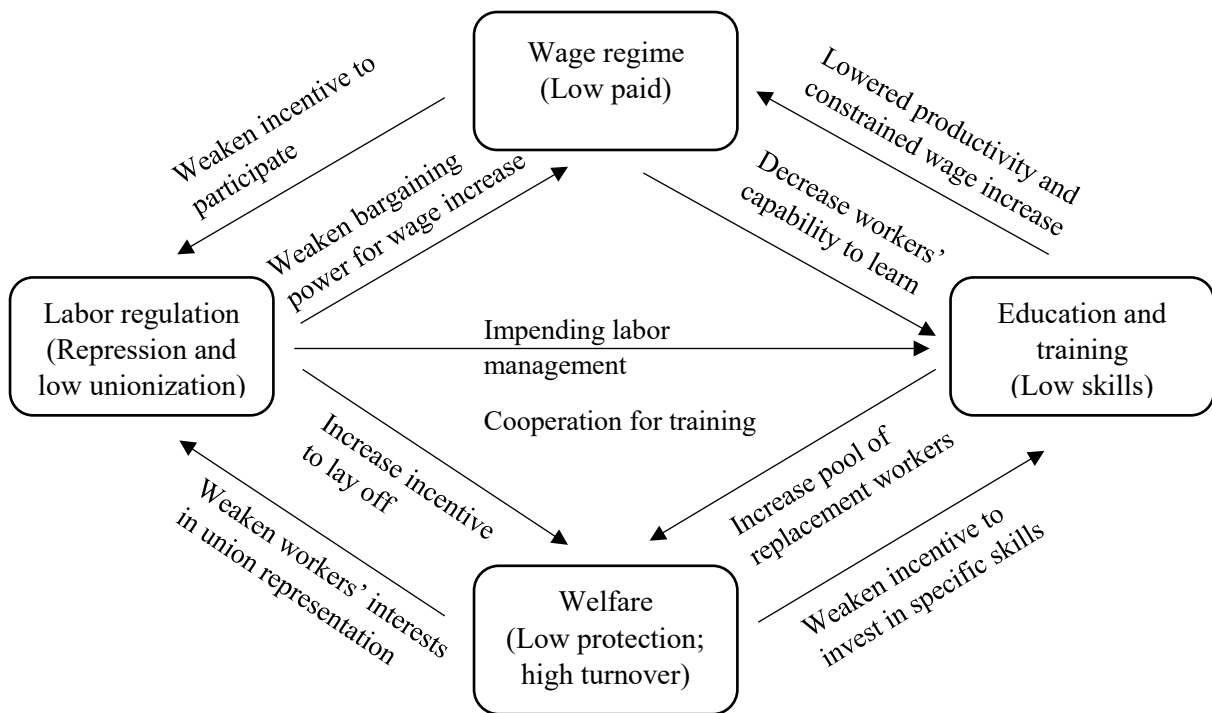
These settings reinforce one another (**Figure 2.6**). For example:

- (1) *Labor regulations versus wage regime*: oppressive regulations deter labor from deployment and decrease the potential to bargain for higher wages. Because the union's capability is repressed, workers also have fewer incentives to participate in the labor movement, which weakens the union organization.
- (2) *Wage regime versus education and training system*: the low-paid wage regime discourages workers from investing and waiting to reap the long-term benefits of education because of their limited financial capability. At the same time, because of their low schooling years and skills, they receive low-paid salaries.
- (3) *Education and training system versus protection and welfare*: the low average skills of workers in the labor market means that there is a very large pool of unskilled labor ready for employment. This condition allows employers to hire and fire workers easily. Therefore, precarious workers have fewer incentives to learn specific skills.
- (4) *Protection and welfare versus labor regulations*: because workers encounter very high-turnover and short-tenure jobs, they have fewer incentives to participate in the

labor unions. At the same time, a weak union cannot not defend labor rights and protections related to employment.

- (5) *Labor regulations versus education and training systems*: repressive labor regulations and weak unions discourage collective capability among workers. Furthermore, repressive practices heighten a contesting attitude between the state–business and workers. These conditions lead to coordination failures in learning processes.

Figure 2.6: Labor-related institutions and complementarities of the low-wage regime in HMEs⁵²



⁵² This diagram is developed from Schneider (2013: 102), which illustrates labor market complementarities in Latin America with five variables: (1) high labor regulation; (2) low average wage; (3) small and politicized unions (weak plant-level representation); (4) short job tenure; and (5) large informal economy. To apply Schneider's framework in this thesis, I shall remove the informal economy from the framework because it is a structure or initial condition instead of an institution per se. I have also put labor regulation and unionization together because they are closely linked.

These five relations become core labor-related institutions of what I shall call the low-wage regime. Under these settings, businesses exploit cheap and unskilled labor to generate growth and maintain their industries without upgrading technologies or investing in skill formation. Moreover, the state, which bases its stability on the existing economic performance, does not want to take risks and divert from the equilibrium of the economy, so it helps those businesses to maintain the regime. In brief, this low-wage regime is supported by the state–business ally, as well as its own institutional complementarities. Therefore, it is durable. This describing situation existed in South Korea, Taiwan, and Brazil before the 1980s.

For example, in South Korea, labor regulations were repressive and did not allow for autonomous unions. The only central state-sponsored labor organization was the Federation of South Korean Trade Union (FKTU). Generally, the recommended wage was not particularly generous,⁵³ and the education and training system was still developing. Until the 1970s, secondary and tertiary graduates made up only 26.4 percent and 6.1 percent of total workforces, respectively. Even in advanced industries, such as the automotive industry, poaching skilled workers was preferred to in-house training (Amsden, 1989: 224). Labor protection and welfare (the Standard Labor Act) were weak. Generally, South Korean workers worked more than 50 hours per week until 1989 (Lee, 2009: 60).

In Taiwan, similar to South Korea, the central labor organization was monopolized by the state-sponsored union known as the Chinese Federation of Labor (CFL). It is possible that the state utilized the CFL to manipulate labor movements and wages. The average wage of non-agricultural workers in 1986 was around 48 percent of the rate in 2004; and welfare and protection were not generous (even if they were better than in South Korea). The Labor Standard Law enacted in 1984, for instance, set the statutory working hours at 48 hours per

⁵³ The average wage of non-agricultural workers in 1986 was just 20.6 percent of the wage in 2004 (Lee, 2009: 50).

week (Lee, 2009: 61). Regarding the education and training system, 42.96 percent of the Taiwanese workforce in 1979 had a primary education (Vere, 2005: 718).

In Brazil, following the Vargas era, the government created the state-sponsored *sindicatos* – legal labor organizations – and brought workers into the structure. This is a foundation of Brazilian corporatism and the core platform for negotiation. However, other labor organizations were prohibited and repressed. While the wages of industrial workers increased continually in the 1960s, the majority of the workforce lived in informal, agricultural, and rural areas and still received miserable wages and had no platform for negotiation. By the 1990s, around 69 percent of employed persons in the export sector had some primary education. Only 5 percent had 12 or more years of education (Schneider, 2013: 117). The median job tenure was approximately five years, equal to the median of liberal market economies (p. 96).

This evidence shows that, although illegal or unofficial labor movements increased substantially from the mid-1970s, resulting in many changes in the 1990s, they were still unable to quickly and comprehensively transform the institutional features of the economy.⁵⁴ However, these efforts and movements gradually transformed the institutional features from within. Between the 1990s and 2000s, the low-wage regime and its institutional complementarities were gradually broken down and transformed into the “high-wage regime” presented in the next section.

⁵⁴ Organized labor in Korea, Taiwan, and Brazil played an important role in wage bargaining and other politico-economic dimensions from the 1960s. Korean unions, for instance, which initially demanded a wage increase, included KSEC in the shipbuilding industry in 1967. In the 1970s, Jeon Tae-il and other martyrs committed self-immolation to protest against the tough working conditions, demanding that employers comply with the Labor Standard Act. These movements pushed wages up very quickly. Nominal wages increased by around 200 percent between 1965 and 1971 (Amsden, 1989: 207). However, the institutions that prohibited autonomous labor unions, low-wage payments (suggested wage guideline), and tough working conditions (the Labor Standard Law) stood still. These institutions were revised only after 1987.

Endogenous Changes Towards a High-wage Regime

Organized labor movements shake the foundations of the core labor-related institutions in South Korea, Taiwan, and Brazil. While these movements cannot abruptly revise institutional features, they seek to fight under the rules, and they strategically divert from the rules. Regarding these efforts, gradual changes of institutions emerge in “the gap” or “soft spot” between the rules and interpretation of the rules and enforcement (Mahoney and Thelen, 2010: 14).

For example, while the labor laws in South Korea, Taiwan, and Brazil⁵⁵ prohibited autonomous labor organizations and movements, many cases of illegal movements had initiated since the mid-1970s (**Box I** in **Figure 2.7**). These movements granted power to workers who were negotiating their wages beyond the government’s recommended wage guidelines⁵⁶ (**Box II**). Increasing wages then provided the capability for employees to learn. Simultaneously, higher labor costs pushed the state and employers to upgrade policies and technologies in the 1980s. Therefore, the education and training system gradually progressed (**Box III**). Finally, because the new production technology required more skills, this strengthened the incentives to hire trained and qualified workers and increased job tenure (**Box IV**), which in turn increased the incentives to participate in the labor organization and reinforced **Box I**.

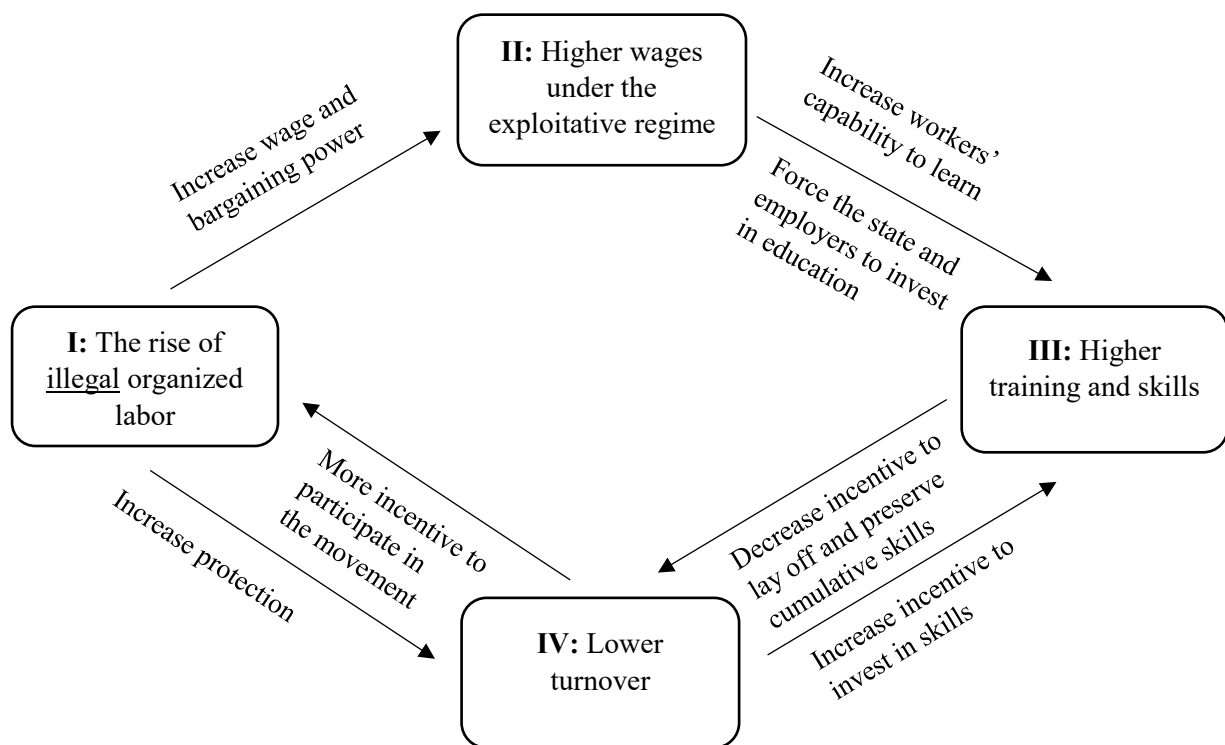
The situation in **Figure 2.7**, in which the rules formally remain the same but their impact change as a result of dynamic external conditions or internal practices, is called “*drift*” (p. 17). The state habitually represses these drifting efforts; however, the movements are

⁵⁵ “This became clear when the Goulart regime fell in 1964, despite years of encouragement to mass mobilizations through the dual structure formed by the illegal but tolerated Comando Geral dos Trabalhadores (CGT) and the similarly illegal city-wide inter-union “pacts” (Moisés, 1979: 53).

⁵⁶ “In Korea, wage levels have been determined by the interplay between the government’s “recommended wage guidelines” and the attempt to defy such guidelines through firm-level wage negotiations. These firm-level demands have been coordinated by the KCTU and FKTU during March and April every year (Lee, 2009: 58).

sustained because they initiate some positive feedback loops (**Box I → II → III → IV → I ...**). Finally, when vetoing players such as the authoritarian state and businesses are weakened, the core institutions are “*displaced*.” The drift and displacement of institutions, however, do not happen in the same way in South Korea, Taiwan, and Brazil. The following section will illustrate diverse changes of labor institutions in the case studies.

Figure 2.7: Endogenous changes of labor institutions between the 1960s and 1980s in South Korea and Taiwan



A Simulation of Ideals I: South Korea’s Liberal Market Economy

In South Korea early institutional displacement occurred in the late 1980s when the labor law was revised. “Although enterprise-level unions could now freely organize, union pluralism was not granted” (Lee, 2009: 55). In 1990 workers tried to form a national autonomous labor organization, named the National Congress of Trade Unions (NCTU).

However, the leaders of the movement were crushed (i.e., they were laid off, blacklisted, and arrested). In 1995 the NCTU expanded its allies by incorporating other Chaebol and white-collar unions to form a new independent organization called the South Korean Confederation of Trade Unions (KCTU). This new organization gained *de jure* recognition in 1997 when the crisis (1997–8) occurred (ibid.).

According to the above stories, South Korean firms had already realized that the state could no longer control militant labor organizations from the late 1980s. Therefore, in the 1990s they gradually changed their regulations from the hierarchical-repressive method to a “competition-led” regulation. The government insisted that “securing labor market flexibility was the only approach to improving the economic competitiveness of South Korean firms.” At the same time, “South Korean employers actively pursued numerical and external flexibility through layoffs, outsourcing, and the use of contingent workers” (Kim and Kim, 2003: 352). These methods inevitably transformed the wage regime too.

South Korean firms adopted the competition-led wage regime in the 1990s. Since 2000, “a comprehensive survey by the Ministry of Labor showed that 23 percent of South Korean firms had already adopted [the] merit pay system as of January 2000 and that more than 30 percent of them were considering its implementation within 2 to 3 years” (p. 354). Under this wage regime, employers preferred to pay high wages for high performance. It was relevant to the theory of the efficiency wage and wage for learning. Therefore, the average monthly wage of non-agricultural workers increased continually from 350 USD in 1986 to 1,700 USD in 2004, which was around 4.86 times (Lee, 2009: 50).

The competition-led wage regime constructed in the 1990s was impactful on other institutions in at least three important ways. First, it stimulated workers to learn quickly, so they acquired new skills. Second, because the system encouraged workers to compete with one

another, it discouraged them from participating in unions and focused instead on increasing workers' individual performances. Third, weakened unionization and also individual-based consciousness, which developed from the competition-based wage regime, discouraged workers from negotiating for wide social programs. In addition, employees were working hard and were vulnerable to being laid off (p. 50) (even if it was higher than the labor-absorbing sectors, it mainly utilized unskilled workers).

Regarding welfare-related institutions, South Korean labor movements successfully displaced the old institution (the labor law) in 1989 and reduced the legal limits for working hours from 48 to 44 hours per week.⁵⁷ Interestingly, from 1986 to 1999 the actual working hours of South Korean workers had never gone lower than 47 hours per week, except for the period of the 1997–8 crisis (Kim and Kim, 2003: 346). To a large extent, this was a result of the competition-led wage regime mentioned above. These hardworking and actively acquired skills reflected a higher demand for education. The government responded by spending a huge amount on education. “The ratio of government expenditure on education to the total government budget reached 17.4 percent in 1994” (p. 347). It was even higher than Japan, the UK, and the USA.

All these institutional displacements were mostly accomplished during the 2000s. They created: (1) high wages conditioned by workers' performance; (2) high general skills based on university-trained systems; (3) low labor protection; and (4) low legal support for unionization. These characteristics were consistent with the *Liberal Market Economy (LME)*.

⁵⁷ In the early 2000s, organized workers tried to push further by negotiating a 40-hour working week. However, the government delayed implementation of the 40-hour working week to 2010 (Lee, 2009: 61).

A Simulation of Ideals II: Taiwan's Networked Market Economy

In Taiwan, like South Korea, the virtuous circle of institutional displacement was ignited from increasing labor movements and revising labor regulations. Taiwanese labor disputes increased gradually from 1980, after the KMT permitted more political participation. Three major Taiwanese labor organizations were established between 1987 and 1989 without legal recognition from the state. They were The Taiwan Labor Front (1987), The Coalition of Independent Unions (1988), and The Associations of Labor Rights (1989). They mobilized strikes intensely through the late 1980s. Therefore, “between 1987 and 1989, the Taiwanese state and employers were engaged in a process of adjustment after being confronted with successive waves of strikes” (Huang, 2002: 307).

Between 1994 and 1998, labor movements tried to collaborate with an opposition party, the Democratic Progressive Party (DPP), creating “county-level” and “city-level” independent unions. For example, the Taipei County Federation of Industrial Unions (TCFI) was established in 1994.⁵⁸ The KMT government treated it as an illegal union; however, most local unions were founded in areas governed by the DPP and achieved local recognition (p. 317). In 1999 these local independent unions jointly founded their own national-level union named The Taiwan Confederation of Trade Union (TCTU). Again, the KMT government disapproved but the DPP supported the existence of the TCTU.

In 2000, when the Presidential candidate of the DPP – Chen Shui-bian – won an election, his government gave legal recognition to the TCTU. At this point, unlike South Korea, Taiwanese labor movements possibly sought to compromise with politicians (via the opposition party) and could institutionalize their objectives. In this way, Taiwanese labor

⁵⁸ Others local areas where workers organized and established their own unions were Tainan County (1995), Kaohsiung County (1996), Yilan County (1997), Taipei City (1997), Kaohsiung City (1997), Hsinchu County (1997), Miaoli County (1998) (Huang, 2002: 316).

movements had political space to bargain so they did not need to impose militant crusades outside the institutional framework set by the state. Consequently, wages continually increased at moderate rates (slower than South Korea but still faster than other latecomers). For example, between 1986 and 2004, the average wage of non-agricultural labor increased from 600 USD to 1,250 USD (Lee, 2009: 50).

As soon as Chun won an election in 2000, he invited both labor representatives (from the CFL and the TCTU) and employers' associations to tackle the reduction of the working week. They were able to reach the first tripartite consensus in Taiwan's history, with a 44-hour working week. Surprisingly, in order to regain support after the party failed in the presidential election, the KMT, which still controlled majority votes in parliament, rejected this result and proposed what could be called a more progressive offer. The revised proposal initiated by the KMT was "84 hours every two weeks" (a 42-hour working week) (p. 62). At this point, the DPP was not the only entity that endorsed labor issues; the KMT also joined the campaign.⁵⁹ This story reflected how welfare-related issues were institutionalized in the 2000s.

Simultaneously, between the late 1990s and the early 2000s, higher education expanded rapidly. According to Chou and Ho (2007: 353), around 58.88 percent of senior high schools in 1996 had graduates that were admitted to the next level of education. The ratio increased rapidly to 68.74 percent in 2000 and 80.05 percent in 2004. During the same period, vocational graduates who were admitted to the next level of education increased from 17.71 percent in 1996, to 38.43 percent in 2000, and 67.17 percent in 2004. This reconfirmed two things. First, higher education expanded together with other labor-related institutions. Second, the vocational track was important after the Taiwanese economy evolved to incorporate the new institutional features.

⁵⁹ Another example was when the parliament also successfully passed "the Protective measures for Laid-off Workers" in 1999 (Lee, 2009: 65).

In short, Taiwanese labor institutions had been transformed since the 2000s. The new institutional features were: (1) high pay for collective efforts; (2) high specific skills based on vocational training; (3) high labor protection; and (4) high unionization. The trajectory of institutional changes was based heavily on close networks of political and economic actors generating more advanced technologies via incremental innovations and strategies. Therefore, it should be called the *Networked Market Economy (NME)*.

Brazil's Bifurcated Market Economies

In Brazil, as in South Korea and Taiwan, the institutional changes were initially revealed from the late 1980s when labor movements attained favorable conditions together with democratization. “In 1986 the constituent assembly was formed to write a new constitution, with provisions affecting labor among the many to be addressed” (Cook, 2002: 8). The mood and tone of the reform were liberal. For example, state intervention was reduced and capital–labor relations became more autonomous. Besides, “the government had supported a context of greater bargaining autonomy, along with a more open environment for strikes” (p. 9). Since 1988, the rights to strike and to organize were internalized into the constitution.

Unfortunately, Brazil's economy fell into a recession and inflation increased very quickly in the 1990s. Therefore, real wages declined. Cardoso was the first among prior presidents between 1994 and 1998 to successfully control the economic crisis, bringing inflation down to an acceptable level. Half a century of crisis led to a high unemployment rate and sizable stock of laid-off workers. As such, while the 1988 constitution already recognized various labor rights and union pluralism, union memberships dropped. At the same time, “unions went on the defensive, shifting their focus from wage increases to job security” (p.

18).⁶⁰ It then opened a window of opportunity for Cardoso to push more liberalization and flexible employment.

“In early 1996, Labor Ministry Paulo Paiva sent Congress a labor law package dealing with short-term employment, flexible workdays, and flexible compensation. The government proposals were to establish fixed-term employment contracts; to reduce employer contributions to the FGTS⁶¹; to establish an ‘hour bank,’ in which workers would be compensated with time off rather than pay in cases of overtime” (p. 19). These packages reflected the urgent task of the government to reduce the unemployment rate at the expense of labor protections. In 1998 these measures were extended to “a provision permitting part-time contracts of up to 25 hours a week and a measure permitting temporary suspensions of employees of up to 6 months” (p. 20).

Indeed, labor organizations wanted to maintain the generous labor law; however, there were two barriers. First, “de facto developments commanded labor’s attention more than de jure changes. Increasing trends toward outsourcing, subcontracting, and industry relocation, as well as high unemployment, threatened labor’s bargaining power more powerfully and more immediately than changes in the labor code” (p. 22). Second, there was bifurcation among the labor movements. For example, two large labor unions, namely, the *Central Unica dos Trabalhadores* (CUT) and the *Forca Sindical* (FS) usually disagreed with each other. In this way, the labor-related institutions continually moved toward more bifurcated demands and results.

⁶⁰ In this situation, the wage issue was generally undermined but not completely ignored. For example, between 1998 and 2002 the *real minimum wage* increased by around 4 percent per year; and average *real wages* declined by -2.28 percent a year (Barbosa-Filho, 2008: 206). Real wage growth returned to a positive level when the crisis passed and Lula – the leftist backed by labor organizations – became president. Another dataset collected by Berg (2010) reconfirmed this finding. The real minimum rate of Brazil increased from 213 R\$ in 1995 to 297 R\$ in 2002. Then, it accelerated from 281 R\$ in 2003 to 510 R\$ in 2010.

⁶¹ The capitalization fund; or Fundo de Garantia do Tempo de Servico (FGTS).

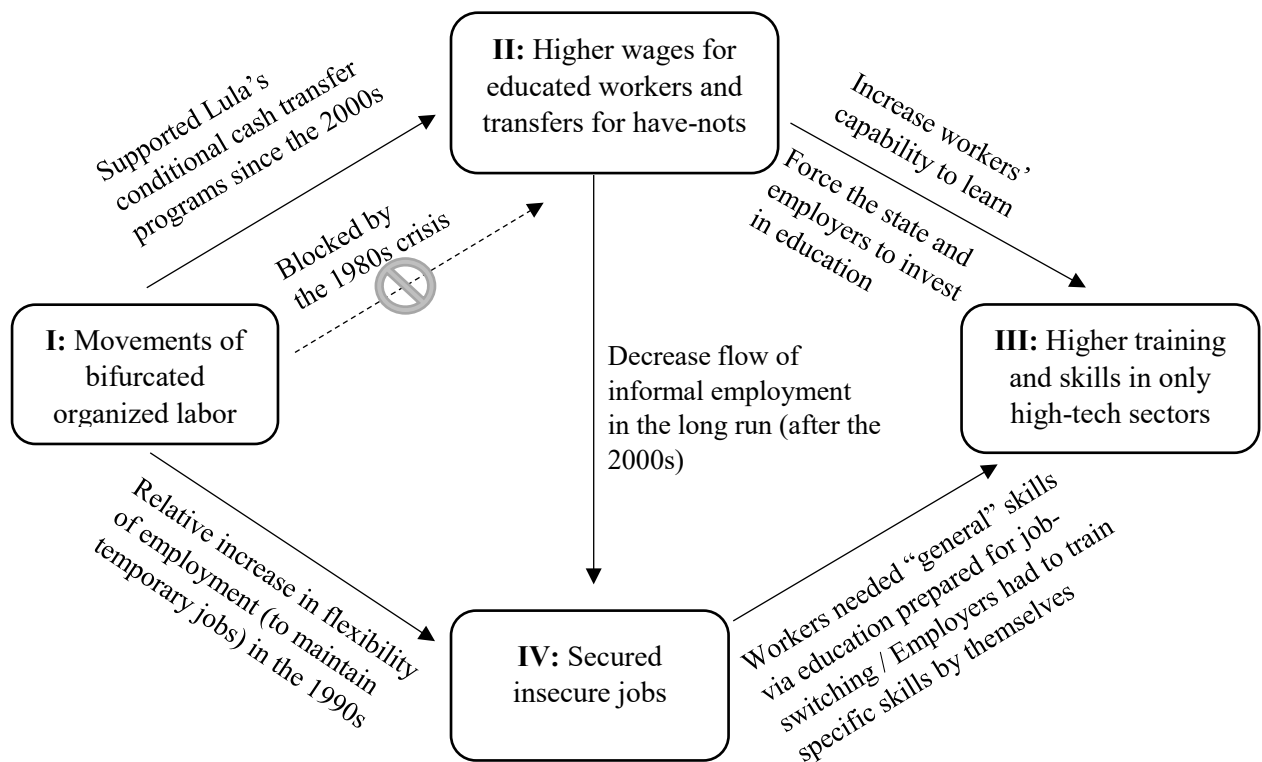
It is not surprising that higher flexible employment means the economy generated more informally employed workers who did not receive proper training and had low specific skills. At the same time, the high-tech sectors such as aircraft, automobiles, and computers, established since the 1980s, demanded skilled workers as soon as the economy recovered in the late 1990s. This was a dilemma that could be reconciled by raising a higher wage premium for “educated” workers in order to lure them into working for high value-added activities in the high-tech sectors. The high-tech firms then specifically trained those educated workers who mastered the required skills. As a result, the wage premium, especially for a big industrial city – Sao Paulo – reached around 150 percent (Schneider, 2013: 122).

The problem was that, if the incomes of workers were too low (even if they got temporary jobs in the flexible-employment regime), poor households were discouraged from sending adults to be trained and children to schools. Thus, the pool of educated labor would expand more slowly than required by the demands of the high-tech sectors. To solve this problem, after Lula became president in the 2000s, he announced a conditional-cash-transfer program named *Bolsa Familia*. The program transferred subsidies to poor families and demanded that they participate in health and educational services provided by the government. As a result, educated and healthy labor forces increased, and supplies of child labor and informal workers decreased in the long run.⁶²

All of the aforementioned processes between the 1980s and 2000s are presented in **Figure 2.8**.

⁶² For example, Berg (2010: 10) reported that the share of formal employment in Brazil increased continually from 44.5 percent of total workers in 2002 to 49.6 percent in 2008. Of course, the conditional cash transfer was not the only factor behind the increasing trend of formal employment. Other factors such as better economic conditions, simpler laws, and incentives that allow firms to register their workers and economic activities into the state’s database also contributed to the trend.

Figure 2.8: Endogenous changes of labor-related institutions from the 1980s to 2000s in Brazil



In conclusion, this thesis contends that, in addition to a developmental state and productive businesses, *developmental labor* plays a critical role in economic advancement toward a high-tech economy. In our case studies, developmental labor movements utilize different strategies to negotiate with the state and businesses, producing different economic as well as institutional outcomes. In South Korea, organized labor is militant, triggering businesses to adopt the labor-saving path. In Taiwan, organized labor is compromised; therefore, it stimulates businesses to take the labor-complementing path. In Brazil, organized labor is bifurcated, so that it leads to mixed characteristics of development. These varied economic outcomes lead to the varieties of labor institutions (and partially determined the varieties of capitalism). These arguments and theorized causal mechanisms will be presented carefully in the following chapters.

A Summary of the First Case: South Korea

“There are three critical mechanisms of the economic transformation in South Korea. First, Chapter 3 shows that the developmental state emerged in the 1960s, and it continually created conditions that supported the rise of developmental labor in the next decade. In Chapter 4, from the late 1970s to the early 1980s, developmental labor emerged and mobilized wages upwards very fast. This triggered changes in the business practices of leading firms, as well as economic policies formulated by the state. In parallel, South Korean developmental labor employed a radical strategy for bargaining (i.e., self-immolation and protest first, negotiate later); therefore, businesses and the state preferred labor-saving methods of adjustment. These mechanisms simulated institutional evolution toward the liberal labor market in the 1990s.”

Chapter 3:

The Emergence of Developmental Labor in South Korea

This chapter will present three essential issues that arose during the early phase of South Korea's development. The first part will provide a brief summary of its economic development from the Joseon dynasty (1392–1897) to Rhee Syngman's government (1948-60). The second part will illustrate how Park Chung-Hee's administration reformed national bureaucracy and conducted industrial policies in the 1960s. Finally, the last part will revise some misunderstandings about South Korean organized labor. It demonstrates that the labor movements played an important role in increasing wages and triggered initial efforts to upgrade industries into higher capital-intensive activities and technological licensing. These labor movements were classified as developmental labor.

3.1 Antecedent Conditions

From the Hermit Kingdom to Colonial Reformation

The Joseon dynasty ruled Korea from 1392, facing foreign invasions from Japan and China in the sixteenth and seventeenth centuries, respectively. These invasions created a negative attitude toward foreign states; therefore, the Korean elites implemented a policy of international isolation, "which resulted in Korea's nickname of 'The Hermit Kingdom'" (Pilat, 1994: 33), leading to underdevelopment. Before the 1870s, for example, Korea rarely imported Western

inventions and unhurriedly expanded both domestic⁶³ and international trade. Trade was focused mainly on the exchange of commodities with powerful states such as China and Japan through the tributary system.⁶⁴

During the last phase of the dynasty, the state had limited capacity to manage the fiscal space and social justice.⁶⁵ Furthermore, an invasion of external forces increased social tensions between the elites and the commoners. Subsequently, in 1876 the Japanese government forced Korea to open its markets and sign the Treaty of Ganghwa, a trade treaty that led to other Western countries successfully making similar agreements. Within a short period of time, foreign merchants and products flooded into Korea; moreover, after 1876 the Japanese currency – the yen – became the *de facto* money. While Koreans produced primary and agricultural products, Japan and other developed countries exported manufacturing goods into Korea.

In the 1890s increasing fiscal imbalance and political movements necessitated national reformation; however, the rigid power relations among the elites hindered progress (Kohli, 1994: 1271). In 1894 the Donghak Peasant Revolution took place and occupied many areas. The Joseon dynasty could not control the rebellion, so the administration called for military support from the Qing dynasty, China, which sent armed soldiers to Korea. This was considered

⁶³ “Farmers maintained household industries solely to meet their own needs and to fulfill a tributary obligation to landlords. Although independent artisans produced handicrafts for others’ use, the high degree of subsistence that characterized the economy meant little market activity” (Amsden, 1989: 30). Utilization of currency was limited. Instead of using the money, Koreans, particularly in rural areas, used rice and barley as the medium of exchange (p. 31). Besides, “Seoul had no more than 200,000 inhabitants, only one-fifth the size of Edo” (Pilat, 1994: 34). In conclusion, the mode of production and exchange were underdeveloped.

⁶⁴ While there was trading of furs, marine products, textiles, and silk, among others, these commodities belonged to Chinese and Japanese merchants. In particular, in 1557 there was sanctioned trade between Japan and China. Therefore, merchants in these two countries needed a market for indirect trading and they chose Korea (also Ryukyu and Ezo) for the indirect trade routes (Arano, 2013).

⁶⁵ In the 1860s Korean aristocrats could not keep state revenue and expenditure in balance and budget deficits increased. They mistakenly solved the problem by intensifying exploitative measures. For instance, illegitimate taxation was imposed, such as taxing death or infants. These malpractices sparked peasant revolts, namely, the People’s Revolt of Imsul Year (1862), across seventy villages. The rebels even killed local officers and tax collectors. The insurgency ended with the appointment of new officers, who refrained from aggressive taxation, in local areas (Bae, 2017: 235). However, the deficit budget problem could not be solved.

a threat by the Japanese, who responded by mobilizing troops to control the Royal Palace and establishing the pro-Japanese government. After a brief military confrontation between 1894 and 1895, Japan was victorious.

A decade later, the Japanese empire forced Korea to sign the Protectorate Treaty in 1905 and annexed Korea as the official colony in 1910. As Acemoglu et al. (2001) argued, colonizers considered many factors when deciding whether or not to live in colonies permanently. Once they decided to live there, they tended to establish a preferred institution for the colony. In the case of Korea, because of its close cultural and physical proximity, Japan preferred direct control and established a long-term economic plan for Korea. Hence, between 1910 and 1945, the Japanese government implemented developmental policies based on its experience of the Meiji reformation (Kohli, 1994: 1272).

There are numerous consequences of the colonial state, four of which are relevant to this study. The first consequence was bureaucratic reformation: a modern and centralized system replaced the patrimonial system. The number of Korean bureaucrats increased and were expertly trained in Japanese style. For example, the police force increased from approximately 6,222 persons in 1910 to 60,000 persons in 1941. These new structures and trained bureaucrats raised state capacity. For instance, the colonial government efficiently collected tax. The land tax and other revenue increased from 7.3 million yen in 1905 to 24 million yen in 1911 (p. 1274). The capable state also invested in several projects, such as infrastructure, land survey, and industrial upgrading.

Second, the colonial government created a particular state–business relation, which provided some lessons for post-war Korea. As Kohli said, “the main point is not that Korea inherited a relatively industrialized economy. It did not!” (p. 1297). Heavy industries, including an electric power plant, were mainly located in the north (Kim and Park, 2003: 40). Moreover,

infrastructure was destroyed during the World War and the Korean War. The real legacy was how the state formed an alliance with businesses for development. The leader of the colonial state, the governor-general, directly supported targeted businesses to improve production. Both Japanese and even Korean firms called the governor-general “jifu” (loving father) (Kohli, 1994: 1281).

Third, the Japanese military government formed primary industries to support the war economy. These industries, such as textiles, metal, mining, and machinery, increased the number of employed wage workers. For example, Koo (1990: 671) estimated that “between 1933 and 1938, the number of waged workers increased dramatically: factory workers increased from 90,000 to 183,000; miners from 71,000 to 224,000; and construction workers from 44,000 to 193,000.” During the last phase of the colonial era, Korea had 1.32 million industrial workers (Minns, 2001: 176; Chang, 2009: 77). These industries ended abruptly and workers were separated after World War II, although some continued working in Korea.

Fourth, the capable state and large conglomerates together repressed other social forces to ensure stability in both the political and economic domains. For instance, political organizations and movements were prohibited. Anyone who organized opposition to the government had to be crushed. The state also cruelly controlled the working class. For instance, laborers in Kyongbang’s textile mill had to work 12-hour shifts, with only a 40-minute break. The plant was surrounded by high fences and guards, which resembled a low-security prison. While laborers worked under deprived conditions, their wages increased minimally (Kohli, 1994: 1284).

The industrial workers and the Japanese regime were not static but evolved and fruitfully contested each other. During the 1920s, industrial workers formed labor unions and

expanded their membership very quickly. The number of unions,⁶⁶ for instance, increased from 33 groups in 1920 to 488 in 1928, when each union had on average 138 members (**Table 3.1**). Their level of militancy also increased from 81 strikes, with 4,599 workers involved, in 1920, to 1,608 strikes, with 18,972 workers involved, in 1930 (Kwon and O'Donnell, 2001: 17). Labor unrest in the 1920s was driven by the rising cost of living (Chang, 2009: 76). "For instance, the Busan Dockers' Strike in 1921 and the Yung-Hueng Workers' General Strike in 1928 lasted for several months with anti-capitalist and anti-Japanese slogans. The development of class struggle from the early 1920s culminated in the Won-San Strike in 1929, which was the largest general strike in the history of the Korean labour movement under Japanese occupation. Inspiring anti-Japanese movement, the strike lasted for four months and received much support from national as well as international labour organisations" (p. 79).

These increasing labor movements and militancy alerted the colonial government, which decided to suppress the unions by implementing a "divide-and-rule strategy" in response. It provided more benefits to affiliated unions, which accepted the colonial government. At the same time, it harshly suppressed the militant groups, mostly leftist trade unions.⁶⁷ Therefore, in the 1930s, the number of trade unions declined from 402 in 1932 to 207 in 1935. During the same period, their membership also shrank from 52,988 to 28,211 people (**Table 3.1**). In sum, Korean militant organized labor existed in Korea from the colonial era; however, the movements were softened by the Japanese government.

⁶⁶ Such as the Chosun Labour Fraternal Association (1920), the Chosun Labour Confederation (1922), and the Chosun Labour and Farmer Confederation (1924) (Kwon and O'Donnell, 2001: 17). Chang (2009: 78) added more examples, including the Korean Labourers; Mutual Aid Association (KLMMA) (1920); and the Joseon General Federation of Labour (1924).

⁶⁷ Another interesting method was creating a police-supported organization, the so-called "security union (*Boanjohap*). In practice, this was a union-breaker. Together, in Pyongyang, Jinju, Busan, and Ulsan, employers had to immediately report to the nearest police station if there was a sign of collective action in their plants (Chang, 2009: 78).

Table 3.1: Numbers of trade unions and unionists, 1920–1935

	1920	1922	1924	1926	1928	1929	1932	1933	1934	1935
Unions	33	81	91	182	488	473	402	334	250	207
Unionists	na	na	na	na	67,220	61,730	52,988	41,836	34,460	28,211

Source: Kwon and O'Donnell (2001: 17)

These militant labor movements were not completely destroyed and were revived as soon as Korea was released from Japanese colonialism. In 1945 socialist unionists formed the National Trade Union Council (NTUC or *Chun Pyung*), which had close ties with the Communist Party. The NTUC managed to increase its initial membership from 180,000 to 553,408 people in just two months. From 1946 the interim American government was consciously concerned with the rapid increase of militant unions and tried to cope with them by introducing American-style peaceful unions. The NTUC opposed this effort and organized 264,000 workers to strike. While the government repressed these strikes, which led to deaths and injuries, the NTUC sustained its movement and imposed more than 3,000 strikes between 1945 and 1948⁶⁸ (Kwon and O'Donnell, 2001: 28).

Finally, the government decided to ban and dissolve the NTUC in 1947. “Leftist labor unions were crushed by right-wing groups supported by the American military government (Koo, 1990: 677).” “By the end of the 1940s, the right-wing pro-capitalist trade union, the Korean Labour Federation for Independence Promotion (KLFIP), managed to overpower the communist-led trade union movement” (Chang, 2009: 84). Now it is evident that the trade

⁶⁸ Three important strikes were the September Strike in 1946, the February 7 Strike, and the May 8 Strike in 1948 (Chang, 2009: 84).

unions jumped out of the Japanese colonial frying pan into the fire of the American-supported government. This is the second round in which the militant unions were softened.

Emergence of South Korea and Rhee Syngman's Era

World War II ended in 1945 and the Allied Forces defeated the Japanese empire. The war caused considerable damage to Korea; for example, hyper-inflation appeared because the currency expanded approximately 6.7 times between 1941 and 1945 (Frank et al., 1975: 8). Furthermore, infrastructure and human capital were destroyed. However, the greatest cost came in the form of division between the north and the south. Two days after America sent the Little Boy to Hiroshima, Russia declared war on Japan and invaded the north-eastern areas of Korea from Vladivostok. The northernmost cities were occupied by August 10.

Washington then called for the plan to be drafted to oppose unilateral Korea under the Soviet Union. The advisor of the plan, Brigadier General George Lincoln, contacted Colonel Charles Bonesteel (later to command UN forces in South Korea) and Colonel Dean Rusk (later to become Secretary of State under President Kennedy) to draw up the dividing line in 30 minutes. The only map available to them was the National Geographic Map, which identified only latitude and longitude. They finally picked 38-degree latitude to secure the capital city, Seoul, and Japanese prisoners in war camps (Barry, 2012: 44–5). The plan was sent to the Kremlin on August 16, and Stalin accepted the proposal without revision (p. 47).

At this point, South Korea was delivered by the broken allies, the Soviet Union, and the United States. In 1945 Rhee Syngman, the ex-acting president of the Provisional Government of the Republic of Korea in Shanghai, returned to South Korea. Rhee mobilized political organizations to oppose the foreign interventions (particularly for the Soviet Union and Japan), while at the same time creating good relations with the United States. The South Korea

Constitutional Assembly election was held in 1948. Rhee won the election with 92.3 percent of the vote and became the first President of South Korea. He assumed office under many inferior conditions.

First, the division of Korea and the series of wars made both the north and south worse off. The north contained many heavy industries and ports, which were essential for industrialization. On the other hand, the south developed agricultural supplies and light manufacturing products, which were designed to be complementary rather than divisory. Moreover, between 1950 and 1954, the contestation between the north and the south led to the Korean War, which had severe costs for both sides. For instance, around nine hundred factories, a tenth of the population, more than half of the freight trucks and locomotives, and over three million properties were destroyed (Tepperman, 2016: 159).

Second, Rhee took charge of South Korea when it had weak economic foundations. During the late colonial period, manufacturing companies and managerial positions belonged to the Japanese. Japanese firms owned 94 percent of the total authorized capital. Besides, 80 percent of technicians, who worked in the manufacturing, construction, and utility sectors, were Japanese (Frank et al., 1975: 6). Hence, when the Japanese force abruptly retreated from South Korea in 1945, South Korean firms and labor could not immediately replace the Japanese. It took time to assimilate the South Koreans into these positions. As a result, there was an interregnum period of growth.

GDP growth averaged only 3.9 percent between 1953–5 and 1960–2 (Haggard et al., 1990: 5). In order to rebuild the South Korean economy, Rhee's policies depended on international aid, which financed around 70 percent of total imports and 75 percent of fixed capital formation between 1953 and 1961 (p. 3). At the same time, Rhee supported narrow groups of capitalists to regenerate growth. This policy created large conglomerates, called the

Chaebols, which have dominated the South Korean economy until today. This overdependence on aid and conglomerates was unhealthy for economic development.

Third, in the 1950s South Korea was a weak and politically fragmented state. As soon as Rhee took office, he and his party appointed high-ranking bureaucrats of their own free will instead of using meritocratic methods. For example, in 1960 only 1.3 percent of bureau directors and 4.6 percent of administrators were recruited by standard examination. These bureaucrats were shifted from one position to another within just 9–13 months, which made it difficult to augment their capability (p. 8). Rhee himself was also weak in terms of political support. In 1956 he gained just 55 percent of the popular vote (p. 7). He finally became president after living abroad for decades. Thus, he had few “real” alliances and needed to compromise with many political forces.

These weak characteristics allowed conglomerates to manipulate policy and oppose disciplinary functions of the state by bribery and corruption. Rhee’s party “was believed to have a substantial interest in at least 50 percent of all the private projects receiving American aid in 1960” (p. 9). It is worth noting that the close alliance between the government and the conglomerates was neither a new phenomenon nor a problem per se. The colonial government under the Japanese empire also fostered a similar state–business relationship and generated a reasonable growth phase. The problem of the Rhee government was the weakness of the state to govern business groups and deliver policies.

The only, if any, positive legacy of Rhee was the land reform initiated in 1950. Politically, Rhee imposed the policy to counter the communist appeal from the north,⁶⁹ while also trying to broaden his political support. In 1945 South Korea had “few landlords and a vast

⁶⁹ During the same period, there was a workers’ struggle in the Joseon Textile Company in Busan against bad working conditions. This months-long struggle provoked public discussions about labor issues and stimulated the National Assembly to enact many initial labor laws “such as the Labour Union Law, Labour Standard Law, Labour Committee Law and Labour Dispute Regulation Law” (Chang, 2009: 88).

number of peasants. The richest 2.7 percent of rural households owned two-thirds of all cultivated lands, while 58 percent owned no land at all” (You, 2014: 203). Rhee derived his political benefits from external aid and connections with conglomerates instead of landowners; therefore, he had an incentive to push the land reform. After Rhee delivered the policy, by 1956, the top 6 percent of landowners held only 18 percent of cultivated lands. The Land Gini index improved from 0.73 to 0.38–0.39 between 1945–50 and 1960 (p. 205).⁷⁰

The positive effect of the land reform could not compensate for the poor performances of the Rhee government, and he was continually bereft of popularity. For the upcoming presidential election in 1960, two candidates from opposition parties ran against Rhee. Cho Bong-am represented the Progressive Party, and Cho Pyong-ok represented the Democratic Party. Both died before the election date.⁷¹ While Rhee could easily have won the election following the death of the two opposition candidates, the incumbent party used various illicit and unethical tricks to win it.⁷² These unfair measures sparked and accelerated a wave of anger among South Koreans in 1959.

“During the political turmoil of 1959 the labour movement established an alternative labour federation, the National Council of Trade Unions, which confronted the KLPFI’s pro-capitalist character” (Chang, 2009: 87–8).⁷³ It included 311 trade unions and 140,000 members (p. 88).

⁷⁰ Also see You (2017)

⁷¹ The first Cho was accused of being a communist by the government; then he was summarily executed. The second Cho went for medical treatment in the United States. He said to Chang Myon (later to become prime minister) before he departed, “I’m going to come back in good health” (Chang, n.d.), but he did not. He died after having abdominal surgery just one month before the election.

⁷² For example, a picture of Chang Myon, the vice-presidential candidate from the Democratic Party, was fabricated and posted in several places around the country. In the photograph, someone, who stood beside Japanese officers, was replaced by Chang. This picture suggested that Chang was a Japanese sympathizer. Moreover, the government ordered every school to keep students in check and block them from taking part in any movement.

⁷³ The National Council of Trade Unions (NCTU) did not appear out of thin air. It was gradually formulated throughout the 1950s. An incident perceived as the beginning of the new democratic trade union movement (*Minjunojo Undong*) that finally developed into the NCTU was the Daehan Textile Company Struggle (Chang, 2009: 88). Indeed, this NCTU was different from the National Trade Union Council (NTUC) that dissolved in the late 1940s.

At the same time, students and people in Masan, a district in the Southern province, organized to oppose the fraudulent election on March 15, 1960. The government mobilized police officers to repress the movement. Kim Chu-yol, the student who participated in the incident, was killed by a tear-gas gun; then an officer tied a rock to him and threw him in the sea. While his body floated up, with a tear-gas canister in his eye, on April 11, teardrops also appeared on other faces. Students from universities held a non-violent protest in front of parliament on April 18 and moved to the presidential office on April 19 to request Rhee's resignation. After various efforts to hold office, Rhee resigned on April 27.

South Korea transformed its parliamentary system under Prime Minister Chang Myon. To fight with a tyrant leader is one thing, but to rule the country is another issue. These are different tasks and require different prescriptions. As soon as he assumed office, "Demonstrations for all kinds of causes took place every day" (Haggard et al. 1990: 12). Chang tried, as far as possible, to reconcile these conflicting demands and, simultaneously, imposed a wide-ranging reformation. For example, he initiated the Economic Planning Board (EPB) and drafted a five-year plan. However, his efforts were interrupted by a military coup.

3.2 Park Chung-Hee and the Construction of State Capacity in the 1960s

On May 16, 1961, General Park Chung-Hee staged a *coup d'état*, which laid three crucial foundations for South Korea's subsequent rapid growth. First, in contrast with the pattern of the Rhee and Chang era, Park consolidated and centralized state power. Second, he destroyed the old political connections, which were constructed from the Rhee period, and formed new ones. Leading state agencies strictly governed the new alliance in order to reduce rent-seeking and to increase productivity. Third, Park utilized the Economic Planning Board as the leading

agency to execute the practical industrial plan and to discipline the private sectors (Haggard et al. 1990: 13).

The Political Alliances of Park Chung-Hee

After Park successfully seized power, he was concerned with three essential parties: The United States, domestic businesses, and civil society (i.e., organized students and workers).

First of all, he needed support from the United States. Six months after the coup, Park visited the United States, and a secret document of the United States Government evaluated that “He [Park] and his closest advisors have endeavored to build the visit up in terms of protocol and social functions[, which] is indicative of the nationalistic sensitivity of the new Korean leadership as well as their anxiety to obtain a maximum display of US support – morally and militarily as well as financially – for the new Korean military government.”⁷⁴ In exchange, the United States wanted Park to stand for stable capitalism.

The United States played a prominent role in consulting and shaping the economic policy of the Park government. For example, in 1961 the original version of the Five-Year Economic Development Plan was drafted by Colonel Yu Wonsik and Professor Pak Huibom. The plan emphasized economic self-reliance. It could achieve independence by exporting primary products for foreign currency and reinvesting these gains into heavy and chemical industries. Moreover, the South Korean state and firms had to organize these processes themselves instead of foreign companies. Therefore, it was called inward-looking industrialization. Park approved the plan (Kimiya, 2011: 68), although the United States opposed this political intention.

⁷⁴ Papers of John F. Kennedy. Presidential Papers. President's Office Files. Countries. Korea: Briefing book, Park visit, November 1961 (see <https://www.jfklibrary.org/Asset-Viewer/Archives/JFKPOF-121-005.aspx>)

When Park visited John F. Kennedy in November 1961, the United States government demanded that Park scale down the five-year plan, revising its economic goal by turning to export-led policy and reducing the targeted growth (p. 69). This demand was not a suggestion but an ultimatum. In December 1962 the plan was reviewed. First, it emphasized the principle of free enterprise. Second, inward-looking industrialization was transformed into labor-intensive and export-led industrialization. Third, heavy and chemical industrial development was postponed. Fourth, targeted growth was decreased from 7.1 to 5 percent. (pp. 70–1). Park accepted all of these requests. Such a revision confirmed that the United States was Park's essential Big Brother.

Second, initially, Park decided to repress and even punish the large conglomerates, which were engaged in the corruptible government of Rhee Syngman. Some profiteers were forced by the military to “parade through the *Kwanghwamun* intersection in central Seoul wearing signs with slogans, such as ‘I am a parasite’” (Clifford, 1998: 37). Kim Chong-Pil, Park's nephew and the originator of the Korean Central Intelligent Agency (KCIA), opposed this idea. He said, “I did not like the idea of blaming these businessmen for corruption because we need to mobilize them to launch a strong economic drive for growth” (Malzac, 2016: 93). Park finally allied with these capitalists and forgave criminal prosecutions for some of them.

In exchange, these capitalists had to support the government and cooperate with the subsequent industrialization (Amsden, 1989: 72). For instance, the Samsung founder, Lee Buyng-Chull, left South Korea as soon as the coup happened. He stayed abroad until he successfully negotiated with the military government and returned to Seoul. After the Park administration enacted the anti-corruption law, Lee offered to donate his fortune to the government. Eight other businessmen were summoned and similarly negotiated. These capitalists established the Federation of Korean Industries (FKI) in August 1961 to cooperate with the state (Clifford, 1998: 40–1).

Park also forced other businesspeople to form associations based on sectors and assigned these associations to each relevant ministry in order to develop the South Korean economy (p. 63). These associations helped the government to export and guard against excessive competition. Only one sector that the government wanted to handle directly was *financial*. Park nationalized all financial companies and later utilized these financial institutions to direct, promote, and punish targeted businesses to achieve national goals. We will return to this issue in the following sections. The point is that the new state–business relations had already been formed in 1961.

Third, Park radically repressed other potential opposition forces, including labor unions. In the 1960s Park banned strikes and limited collective activities. All unions, including the NCTU, were dissolved and recreated under the supervision of the KCIA. The umbrella union that organized all other small unions was the Federation of the Korean Trade Union (FKTU, or *Deahan nochoung*). In this sense, the FKTU did not play a role as an organization for labor, but it was part of the state apparatus. Some union leaders were included in government committees; however, these positions were symbolic rather than meaningful (Lee, 2011: 53–4).

In conclusion, Park established his political alliance during 1961–4 by incorporating the United States and large conglomerates into his circle. The United States and the large conglomerates shared the same goal, namely, economic growth and flourishing of the capitalist system. At the same time, Park excluded other potential opposition, especially labor unions, from his coalition. This created a chance for wage suppression and other repressive measures to create social order and a low-wage labor market. In the next section, we will clarify how Park and his alliance transformed South Korea’s administrative structure in the 1960s.

Bureaucratic Reformation and Rebuilding State Capacity

In the 1960s South Korea's macro-institutions consisted of the hierarchical market economy. For example, the national economy was managed by small numbers of powerful and large conglomerates. Furthermore, 81 percent of 1,492 commodities were still traded in non-competitive markets, such as a monopoly, duopoly, and oligopoly (Amsden, 1989: 121); and an allocative state principle to support these firms was neither a market nor an institutionalized negotiation but an order and directive.⁷⁵

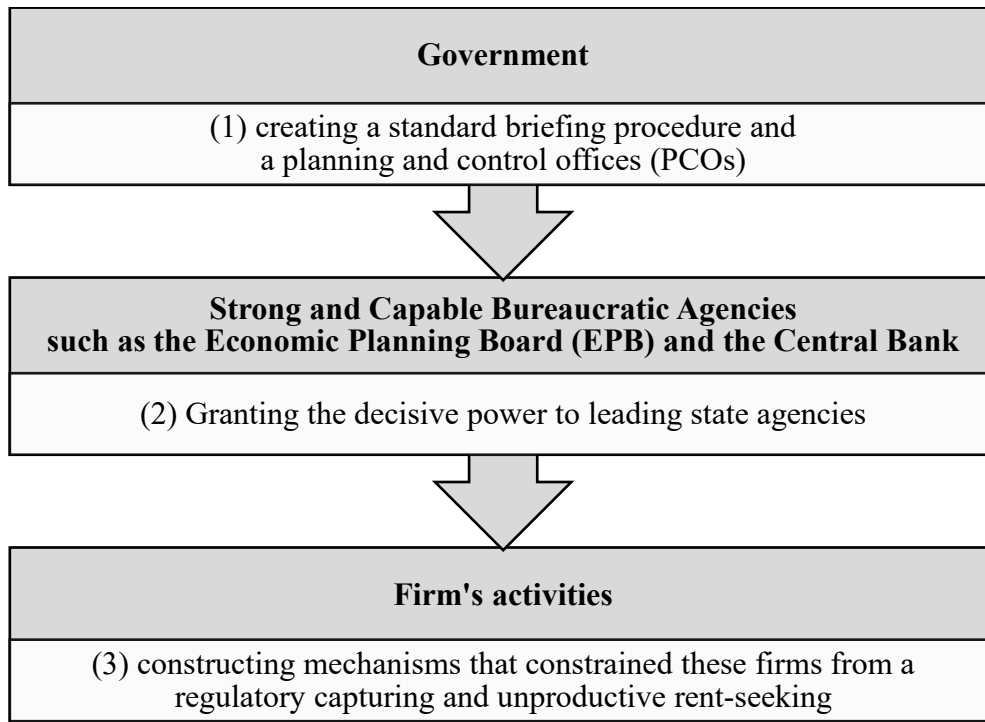
In the labor market, 91.6 percent of labor forces were self-employed or employed in small-scale enterprises in 1960 (Koo, 1990: 674).⁷⁶ Until 1970, a percentage of the secondary and tertiary graduated workforce stagnated at 26.4 percent and 6.1 percent of the total workforce, respectively (Amsden, 1989: 222). Moreover, even in the 1970s, K.W. Lee found that only 27 percent of workers in the automobile industry received in-plant training for basic skills, while 38 percent of workers were poached from other firms (p. 224).

Park mobilized his politico-economic coalition to generate export volume, industrial upgrading, and economic growth under these bad institutions. An important question was how the Park administration so effectively created a high economic performance under these hierarchical institutions. I shall argue that Park constructed three strategies to reorganize relationships among the government, bureaucratic agencies, and large conglomerates that helped him deliver policy effectively (**Figure 3.1**).

⁷⁵ Lee Yeon-ho explained that they needed to run enterprises themselves because their profits came from complex political connections (Lee, 1997: 20). For example, to gain financial support, it was necessary to convince risk-averse officers to believe that their companies were the right choice for a particular project. This is a unique task that only the owner can play.

⁷⁶ Because of post-war conditions, even if data was scarce, we could sensibly presume that South Korea had a large portion of the informal sector. The informal sector of Korea was high even at the end of the last millennium. For instance, Korea had informally employed persons in around 30 percent of total employment in 2000 (OECD, 2008).

Figure 3.1: Park's three-level strategy for delivering policies in the 1960s



First, the Park administration created effective mechanisms for governing bureaucratic agencies related to economic issues. A planning and control office (PCO) were established in the Economic Planning Board (EPB) in 1961 and quickly extended to other ministries. The PCOs provided linkage between the president and all of the ministries to monitor and obtain the necessary information about the progress of economic development. This mechanism, on the one hand, helped the military to learn and develop knowledge about developmental ideas. On the other hand, the military could rigorously control the state agencies and obtain enough information about economic progress (Haggard et al., 1990: 19).

Second, Park transferred decisive power to leading state agencies, especially the EPB and the central bank, to control the large conglomerates.

Beginning in 1961, the government moved three important departments – the budget bureau, the statistics and research bureau, and the planning and coordination office – from other ministries to the EPB. These state departments consisted of vital functions for formulating a national plan. Since 1962, the EPB also controlled externally financial issues such as foreign direct investment (FDI), capital flow, foreign aid, and foreign loan guarantee (p. 18). At the time, the capital market was underdeveloped and capital accumulation was inadequate; therefore, private firms and even developmental projects of the state needed to be financed from the external market. However, foreign banks could not lend money to firms in a risky market, except when there was a sovereign guarantee for repayment, which belonged to the EPB. On these terms, almost, if not all, firms needed the EPB to guarantee their projects.

The central bank, the Bank of South Korea, also played an important role, especially after Park nationalized all of the commercial banks in 1961. In conventional ways, the proactive central bank could control macroeconomic environments through an interest rate, exchange rate, and money supply. However, in South Korea, the central bank could go further by providing a cheap loan (regarding the interest rate), the so-called *policy loan*, to preferred companies. This policy loan was a kind of incentive for capitalists who followed the national plan, but there was no free lunch. These rewards were conditioned by a yardstick such as export targeting (Amsden, 1989: 69), and it did guarantee that beneficiaries had to perform well. In this way, the central bank focused on not only macroeconomic stabilization but also industrial development.⁷⁷

Third, the Park administration also reformed relationships between the government, state agencies, and Chaebols in order to protect regulatory capturing. In many developing

⁷⁷ It is worth noting that a bureaucratic reformation, according to South Korean experiences, did not need to begin with the Weberian broad-based schemes such as an entirely new way to recruit, reward, and promote competent bureaucrats. The strong and capable state for a growth-enhancing goal could be initiated in a particular leading state agency that aligned directly with economic functions like the EPB and the central bank.

countries, and even South Korea under the Rhee administration, rich capitalists could capture the government and bureaucratic bodies to seek unproductive benefits. However, Park revised this relationship. The developmental goals of the government were compulsory rather than being choices for conglomerates. To survive, the conglomerates had to follow state guidelines and could not diverge from them without incurring penalties.

Indeed, it did not mean that the Park administration was free from corruption and rent-seeking. Clifford stated that “foreign businessmen in Seoul called that money that Park and his cronies demanded ‘juice,’ and they factored the ‘J-factor’ into their business calculations” (Clifford, 1998: 93). Some of this corruption money went to the party to stabilize the government. For example, Japanese companies donated around two-thirds of the value of Park’s political party, the Democratic Republican Party (DPR), between 1961 and 1965, which was approximately 66 million dollars. In other cases, politicians directly received bribes (pp. 91–2). However, this corruption could not, in most cases, help conglomerates to avoid their accountability to follow the regulatory conditions of the state.

In conclusion, Park organized the national alliance to reach the national development goals. He created a mechanism to govern the leading state agencies. At the same time, he granted more authority to these agencies in order to govern the large conglomerates. While there was corruption and rent-seeking, not all of the conglomerates could conduct bribes to avoid “accountability”. These elements were not a policy per se, but rather organizational designs for implementing policies in the subsequent periods. The next section will portray the important economic policies of the 1960s.

Economic Policies during the First Half of the 1960s

After Park consolidated his power and founded the new organizational design, he radically pushed industrial policies in the mid-1960s. There were four core components of the industrial policies and export-led industrialization in this period.

First, there was economic stabilization. In August 1965 the government drastically increased the interest rate ceiling, which doubled the nominal interest rate within two months (Amsden, 1989: 74). This policy had two positive outcomes. First of all, it reduced the high inflation rate (20–29 percent), which had been a major problem since 1963–4. Inflation was lowered to 14.7 percent in 1965 and was stable around 11.15 percent, on average, until 1974 (p. 97). Another significant outcome was a higher domestic source of capital. In 1965 a saving deposit increased by 25 percent in a month and tripled in a year. Household savings increased from 0.81 percent of GNP in 1965 to 4.15 percent in 1966 (pp. 74–5).

The second was a policy loan and sovereign guarantee. While the stabilizing package expanded private savings and increased domestic sources of capital, it could not satisfy the draconian expansion of investments in the 1960s. Therefore, the government also implemented a policy loan, as well as a sovereign guarantee for foreign loans. These policies decreased the real cost of borrowing abroad, which helped to finance an expansion of economies in the 1960s (p. 76).

The third component was export promotion. Increasing investments and production were worthless if domestic and foreign demand was limited. In the 1960s the South Korean cotton-manufacturing industry had already faced an excessive supply. For instance, the operating rates of cotton yarn and cotton cloth were only 66 percent and 50 percent of their capacity in 1961 (p. 65), respectively. This forced the government to push capitalists to export

the excess capacity. The Park administration imposed punishments and rewards to ensure that domestic enterprises developed their export performance significantly (Chang, 1993: 142).

Examples of the rewards for domestic firms were a devalued and subsidized exchange rate. As seen in **Table 3.2**, the government devalued the South Korean currency, the won, from 62.5 won/dollar in 1960 to 127.5 won/dollar in 1961, and finally to 130 won/dollar in 1962. The government subsidized the exchange rate for exporters, the so-called *export effective exchange rate*. This rate was around 151.5 won/dollar in 1962. The devalued exchange rate stimulated export volume, which increased around four times between 1962 and 1963.⁷⁸ The currency depreciated sharply again in 1964 and pushed the export value beyond 100 million dollars in 1965 (p. 56).

Table 3.2: Export of manufactures and the exchange rate in 1960-1965

Variables	1960	1961	1962	1963	1964	1965
Export (million US\$)	4.1	5.7	9.6	38.6	57.7	106.4
Manufactured exports (percent of total export)	12.5	13.9	17.5	44.5	48.4	60.8
Official exchange rate (won/dollar)	62.5	127.5	130	130	214.3	265.4
Export effective exchange rate (won/dollar)	147.6	150.6	151.5	189.4	281.4	304.6

Source: Modified from Amsden (1989: 67)

⁷⁸ However, during an early period of the policy, because of high inflation and high import inputs in the light manufacturing sector, depreciation of the exchange rate faced some limitations. It reinforced inflation in 1963–4 and increased the cost of production. The benefits of this policy were effective in 1965 when the high interest rate had already controlled inflation. Moreover, political normalization between South Korea and Japan created a chance to seek new export markets (we will return to this issue again in the following paragraph).

Park also punished capitalists who disagreed with his policies and did not follow the export targeting. For example, Yonhap Steel, one of the largest steel companies in the mid-1960s, rejected the targeting scheme. Consequently, the owner, Kwon Chul-Hyun, was accused of illicit capital flight, and the government forced him to sell the company's shares at just 10 percent of the fair value (Clifford, 1998: 55–6). While a survey revealed that 53 percent of participants had a negative attitude toward this coercive method (Amsden, 1989: 69), they could not resist the demands of the strong man, which suggested that the Park administration had de facto power to govern capitalists in order to upgrade targeted industries.

The last component was a repressive labor regime. The government reorganized the state-controlled labor organization, namely, the Federation of Korean Trade Unions (FKTU), “into sixteen industrial federations comprising 2,359 unions and 336,974 trade union members. The military regime permitted only union officials whom the government deemed were loyal to the regime to remain in office” (Kwon and O'Donnell, 2001: 30).

Moreover, the Park government encouraged workers to sacrifice themselves for their companies and the nation. Slogans such as “Let us work for a better life” (*jalsaraboja*) were used to emphasize a positive relationship between work, laborers, and industrialization. Park himself usually called workers export warriors (*soochooljeonsa*) or industrial soldiers (*saneobjeonsa*) (Kim and Park, 2003: 41). In this sense, diligence was regarded as a social obligation and patriotic duty. As a consequence, these formal and informal mechanisms led to wage suppression.⁷⁹

All four components of the 1960s industrial policy are presented in **Table 3.3**.

⁷⁹ The emigration rate was low and the population growth was high after World War II. Hence, the labor market consisted of the Lewisian unlimited labor supply thesis, and there was low pressure to increase wages (Amsden, 1989: 189).

Table 3.3: Summary of the industrial policies in the 1960s

Policies	Methods	Outcomes
Economic stabilization	Increased interest rate	Lowered inflation and increased savings as a domestic source of capital
Policy loan and loan guarantees	Allocated the policy loan and loan guarantees to targeted firms	Increased investments conditioned by state guidelines
Export promotion	Devalued and subsidized the exchange rate	Increased price competitiveness
	Forced export targeting	Increased participation in export activities
Repressive labor regime	Repressed labor movements and wages	Maintained the labor cost and cost competitiveness

The Emergence of Organized Labor in the 1960s

The mainstream literature generally concluded that in the 1960s the labor movement was repressed, incoherent, and incapable of bargaining with the state and conglomerates; however, this was not completely true (Nam, 2009: 89–90). Indeed, labor was repressed, but these workers did not silently accept all of the oppressions. Three important patterns of labor organizations initially revealed themselves: (1) the increasing roles of labor unions in non-export sectors in the 1960s; (2) a geographical concentration of labor networks; and (3) developmental ideas of labor movements. These three patterns were significantly related to the formation of the labor movement in the later periods.

First, the government harshly repressed labor in the export sectors (i.e., textiles), while the associational autonomy⁸⁰ of non-export sectors such as shipbuilding progressively increased. According to **Table 3.4**, the number of Korea Shipbuilding and Engineering Corporation (KSEC) union members located in Pusan, for instance, increased more than three times, from 364 persons in 1961 to 1,365 persons in 1963. Later, the number jumped to 2,425 persons in 1966. Coverage was also high; 57.2 percent of workers in the KSEC in 1961 were members of the union, increasing substantially to 89.5 percent in 1967.

Table 3.4: Workers in the KSEC classified by union membership (unit: persons)

Year	Total (A)	Production workers (B)	Managerial workers (A–B)	Union members (C)	Coverage rate (C/A)
1961	636	392	244	364	57.2%
1962	1,319	1,087	232	-	-
1963	1,542	1,224	318	1,365	88.5%
1964	1,489	1,321	168	1,365	91.7%
1965	2,140	1,775	365	1,429	66.8%
1966	2,357	1,995	362	1,500	63.6%
1967	2,710	2,372	338	2,425	89.5%
1968	3,145	-	-	2,364	75.2%

Source: Modified from Nam (2009: 97)

Second, South Korean manufacturing plants were concentrated in Seoul and Incheon, located in the north-eastern part of the nation. Another important industrial cluster was Pusan, located in the south-western coastal area of the nation. These areas absorbed 532,000 workers,

⁸⁰ Even at national level, membership of the Federation of Korean Trade Union (FKTU) increased from 224,420 in 1963 to 469,003 persons in 1970. The number covered approximately 20 percent of non-agricultural workers in 1970 (Nam, 2009: 110). However, this number could not clearly separate partisan members and militant members because the FKTU was monitored and groomed by the government.

which accounted for 62 percent of the industrial labor force in 1970 (Liu, 2015: 63). The concentration “provided a setting in which labor disputes had the potential to involve more workers” (p. 65). Therefore, while the frequency of labor disputes was low, the “size” of the disputes was enormous. On average, it was higher than 1,000 persons per incident in 1966, increasing to its peak around 1970. In Taiwan, on the other hand, it never went beyond 250 workers per dispute from 1966 to 2000 (p. 59).⁸¹

Third, these organized workers imagined that they were part of nation-building forces. The union entrusted itself with the twin missions of “helping the company and the industry prosper, and securing better welfare for its members” (Nam, 2009: 100). In other words, labor unions in the 1960s were “developmental” in the sense that they absorbed national prosperity into their objective function. However, capitalists and managerial workers usually saw labor as the passive input for their production (p. 135, 148). These contradictory perspectives on the role of labor in economic development created social tension and stimulated struggles between both sides.

In brief, instead of inertia, labor movements in the 1960s were rather proactive, as measured by the number of members and the increased coverage rate of unions. The geographical concentration of the industrial development created a chance for collective action; therefore, the size of the disputes was huge, and the degree of militancy was high. These movements, however, were productive contestations. Labor unions consciously cared for national growth and the consequences of their demands. These patterns laid the foundations for understanding the developmental role of the labor movement in the 1970s, which is the focus of the next section.

⁸¹ Hagan Koo reached a similar conclusion. He said: “The emergence of densely populated industrial towns such as Kuro, Ulsan, Kumi, Changwon, and Okpo has greatly facilitated the development of working-class communities and working-class solidarity” (Koo, 1990: 676).

3.3 Organized Labor and Industrial Upgrading in the 1970s

The Park administration developed a high growth strategy under the hierarchical market economy (HME) in the 1960s. The government supported and even forced conglomerates to increase productivity and exports. At the same time, labor was repressed to maintain cost competitiveness. However, Amsden argued that “low wages were an ambiguous blessing. They helped a learner like South Korea to enter the world market, but they went hand-in-hand with backwardness. Backwardness, moreover, imposed heavy costs in the form of low domestic purchasing power.” She also added, “These costs made it harder both to enter the world markets in the initial instance and to progress up the ladder of technological complexities” (Amsden, 1989: 63).

While economists, technocrats, and policy-makers realized that technological progress and industrial upgrading were influential in long-term development, they could not reach a consensus about *when* was a suitable time for it; and what were suitable *ways* of upgrading, as discussed in chapter 2. Furthermore, there were always difficulties during the transition period. For example, capitalists, who enjoyed institutional advantages under a low-tech equilibrium under HMEs, might not want to change their business structures and might counter a reforming scheme. Even in terms of pure economic perspectives, changing from labor-intensive to capital and technology-intensive productions required high transaction costs such as new installation of machines, new training programs for labor, the risk of incompatible technologies, and so on. All of these costs deterred developing countries from economic transformation.

South Korea encountered similar problems. For example, Park wanted to deploy heavy and chemical industries (HCIs) from the mid-1960s. However, his technocrats disagreed with this intention. Their core arguments were based on: (1) an abundance of cheap labor, which was predicted to hold for decades (Clifford, 1998: 59); and (2) a limitation of capital

accumulation in the 1960s. Even though Park had de facto power, he accepted the postponement of his HCI project. The following part will explain why the idea of labor-intensive industrialization, which was fixed in technocrats' minds in the 1960s, eventually shifted toward the capital-intensive one represented by HCIs in the 1970s. The answer lies in the organized labor movements.

Organized Labor and the Wage Surge from the late 1960s to the 1970s

In the mid-1960s, the number of members of labor unions increased considerably. At national level, membership of the Federation of Korean Trade Unions (FKTU) reached beyond 300,000 persons in 1966. The number of Korean Shipbuilding and Engineering Corporation (KSEC) union members reached its peak in 1967 (Nam, 2009: 97, 110). In this period, independent and progressive factions in the unions focused their efforts on fighting for a "living wage."⁸² In 1965 the average monthly wage of production workers accounted for only 67 percent of the living wage (p. 104). There was a series of disputes centered on this issue between 1965 and 1967.

The government and business managers repeatedly tried to justify the low wage policy by claiming that workers should sacrifice themselves in order to promote national growth (p. 151). However, progressive unionists rejected the claim, saying that:

“Industrialists are frenziedly raising prices in the commodities market and refusing wage increases in the labor market, and thus doubly exploiting all the people... Industrialists, taking advantage of the fact that [our country] is an underdeveloped country with abundant... surplus labor power, have been propagandizing the view that low wages are the basis of strengthening international competitiveness, but

⁸² The level of wage that afforded a reasonable quality of life for an extended family calculated as the sum of expenses for a six-member household, plus the required tax.

that is a worn-out theory.” Then, they proposed, “the way to get out of the situation was rather to guarantee wages sufficient to enable livelihoods of human beings” (p. 152).⁸³

These organized workers incrementally bargained for better wages and welfare. They were improved during the second half of the 1960s. In the manufacturing sector, the monthly average earnings increased continually from 5,583 won in 1966 to 6,833 won in 1967, and 10,750 won in 1969 (**Table 3.5**). Moreover, the percentage change of real wages turned to positive trend after the mid-1960s (**Figure 3.2**)..⁸⁴

Table 3.5: Average earnings in the manufacturing sector, South Korea, 1955–1975

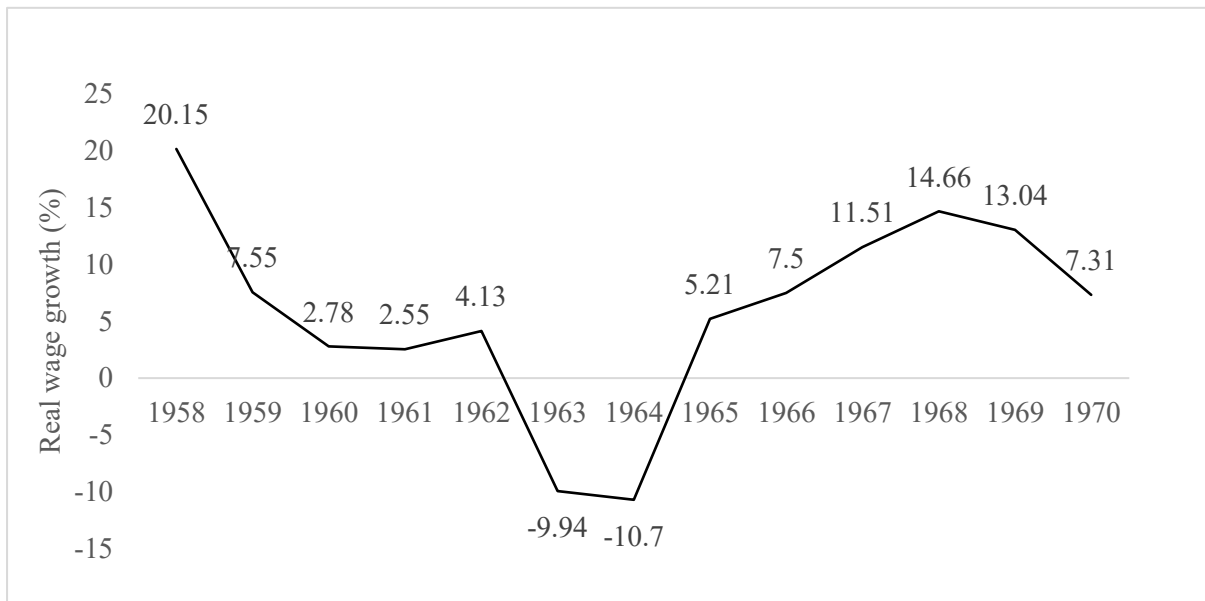
Year	Monthly nominal earnings (Won)	CAGR growth rate (%)
1955	1,250	-
1958	2,000	18.56
1963	3,333	10.75
1966	5,583	18.76
1967	<u>6,833</u>	<u>22.39</u>
1969	<u>10,750</u>	<u>25.43</u>
1970	13,250	23.26
1975	38,250	23.62

Source: Modified from Amsden (1989: 197)

⁸³ Nam (2009) summarized the KSEC union’s document in 1966.

⁸⁴ The monthly average earning in the manufacturing sector was significantly lower than in the KSEC because there were other sectors that faced the radically oppressive practices of managers and the state, for example, the textile industry.

Figure 3. 2: Real wage growth of employees, South Korea, 1958-1970



Source: Calculated by author based on (1) Nominal earnings data from Amsden (1989) and inflation rates from the World Bank (accessed April 16, 2021)

Considering the specific industry in the 1960s, the government kept an eye on labor movements in the export-oriented sectors in such as textile and apparels. Workers in the shipbuilding industry took this opportunity to organize and leverage for bargaining higher wages. This yielded benefits in the mid-1960s. As illustrated in **Table 3.6**, the nominal earnings of white-collar workers increased by around 26.3 percent on average between 1966 and 1967. The rate was even higher for production workers.

Table 3.6: Comparison of nominal wage by status at the KSEC yard, the shipbuilding industry

Year	November 1966 (Won)	November 1967 (Won)				1966-67
<i>Status/Wage (Won/month)</i>	<i>Wage (excluding OT)</i>	<i>Base wage</i>	<i>Job base</i>	<i>Overtime (OT)</i>	<i>Average wage (excluding OT)</i>	<i>Percentage change (excluding OT)</i>
White-collar/technical	14,242	9,903	8,095	1,939	17,998	26.4%
Regular production	10,977	7,848	6,771	8,298	14,619	33.2%
Temporary	6,114	8,442	-	5,469	8,442	38.1%

Source: Modified from Nam (2009: 130)

During 1965–7, when organized workers effectively bargained for higher wages, many enterprises, such as the KSEC and Hyundai Heavy Industries (HHI),⁸⁵ responded by employing more temporary workers, called *insigong* or *iryonggong*, who were paid only 55.7 percent of regular production workers. As seen in **Table 3.7**, the number of temporary workers employed by the KSEC jumped significantly from 777 persons in 1965 to 1,064 persons in 1966. In contrast, during the same period, some regular production workers were fired, and their numbers decreased from 998 persons to 887 persons. This trend reflected the intention to keep employing cheap labor instead of upgrading technologies, which was unproductive and unhealthy for long-term development.

⁸⁵ Also see Kwon and O'Donnell (2001: 81–2).

Table 3.7: Ratio of temporary workers at the KSEC yard, 1963–1968

Year	Regular production workers (A)	Temporary production workers (B)	Ratio of temporary employment (B/A) (%)
1963	1,051	173	16.5
1964	915	406	44.4
1965	998	777	77.9
1966	887	1,064	120.0
1967	877	1,348	153.7
1968	919	1,162	126.4

Source: Modified from Nam (2009: 129)

The increase in wages and temporary workers was not limited to the shipbuilding industry, but it existed in other industries such as machinery (Nam, 2009: 128). However, this strategy was less effective when the KSEC union considered internalizing temporary workers into the union.⁸⁶ Therefore the earnings of temporary workers in heavy industry represented by the KSEC increased in 1967 (**Table 3.6**), while the ratio of temporary workers decreased in 1968 (**Table 3.7**). In other words, hiring temporary workers did not particularly help to stabilize wages for the capitalists. The militancy of labor movements and the repressive methods of capitalists reinforced each other, and conflicts increased substantially in the late 1960s.

Around 1968 labor movements gained momentum and spontaneously spread through many industrial sectors. For example, in the shipbuilding industry,⁸⁷ the KSEC union declared

⁸⁶ In 1967 one-third of KSEC union representatives were temporary. This was intended to protect temporary workers from the exploitative practices of managers. The managers responded negatively by sending a secret order to dismiss temporary workers about a week after 88 days of work (if this were the case, these workers were not eligible for the dismissal-notice allowance). The union successfully opposed this order and made sure that these temporary workers gained the proper protection and rights (Nam, 2009: 130–1).

⁸⁷ The KSEC was privatized on November 6, 1968. The new owner, Yon Namgung, quickly fired mass temporary workers without severance pay on November 29. The union mobilized a work stoppage on December 10. When the company refused to reconsider the decision to lay workers off, the union moved forward to impose a hunger

strikes during November–December of 1968. After a brief period of peace, six months later there was another critical conflict between the KSEC union and the company, which had already been privatized. The company refused to increase wages, which stimulated four months of chaos. The government finally intervened in September 1969. In the textile industry, labor strikes also occurred in the Pangnim, T'aep'yong, and Kumsong areas from 1969 to 1970.

In 1970 the labor disputes spread to joint ventures, foreign organizations, and public entities. South Korean Pfizer's workers, for instance, declared a sit-in demonstration and hunger strike on the rooftop of the plant in February. The security guards of the US embassy attended sit-in strikes because they needed a contract in April. More than 3,000 workers employed by the US armed forces joined the labor dispute in August. The labor movements demanding better wages, contracts, and working conditions were also frequently held in the medical, automobile, banking, and railroad industries (Nam, 2009: 187). In order to protect foreign investments, the government enacted the Extraordinary Law of Trade Unions and Labour Disputes Arbitration for Foreign Invested Company in 1970.

The most climactic incident occurred in the Peace Market in Seoul,⁸⁸ when Jeon Tae-il committed self-immolation as part of a protest. The last words from Jeon, the martyr, were, "Obey the Labor Standards Act! Don't mistreat young girls!" The Jeon incident led to spontaneous self-immolation protests during 1970–1. In May 1971 the increase in the price of rice, as well as the cost of living, motivated numerous riots. For example, more than 400

strike/sit-in on the shop floor. While the conflict came to an end on December 17, a new conflict began just six months later, on June 30, 1969. The union demanded a 56.87 percent wage increase, which the company rejected. On July 16, members of the union voted for a labor dispute. The union began sit-ins and hunger strikes from August 13. On August 19, Yon ordered a lockout and sent riot police to the shop. The conflict continued until the state intervened on September 18 by announcing an emergency adjustment (*kin'gup chojong*). After every party was forced to accept the intervention, 12 union officials were fired (Nam, 2009: Chapter 8).

⁸⁸ The Peace Market was a center for textiles and garment industries in Korea. In 1970 textile workers initially demanded better treatment from employees. Their initial movement was beaten badly by police. In the second round of mobilization in 1970, Jeon Tae-il, a 22-year-old worker, committed suicide to protest against this bad treatment of labor. Jeon's mother, Lee So-Sun, became a prominent leader of the Peace Market's labor union, named "the Chonggye Garment Workers' Union (CGWU)" (Minns, 2001: 182). Also, see Chun (2003: Ch.4).

technicians of the Hanjin Trading Company burned buildings owned by Korean Air in September (p. 188). From the 1970s, “labor unions emerged as a major anti-government force, staging strikes for higher wages and better working conditions, in alliance with sections of civil society” (Veerayooth, 2019: 52).⁸⁹

These movements formed the basis of a “democratic union movement” (*Minjunojouondong*) in the 1970s. After Park just won an election in 1971, he hurriedly consolidated his power by announcing a series of repressive legal measures, including the Law Concerning Special Measures for Safeguarding National Security (1971), the *Yushin* Constitution (1972), and the National Emergency Measures (1974 and 1975). Various parts of these measures were designed to control labor movements.⁹⁰ For instance, in the shipbuilding industry, during 1964–6, police and KCIA officers visited the KSEC union approximately 4.7 times per month. However, in 1970 this number increased to 9.3 times a month. When members of the labor unions refused to cooperate with the government or the company, they were usually sent to be re-educated at the KCIA camp.

The state also pushed an ideological campaign called the “Factory New Community movement” (*Kongjang Saemaul Undong*) and new community circles (*Saemaul punimjo*) in 1973–4. The aim of this campaign was to create obedient workers who complied with cost-reduction and productivity-increasing measures (Nam, 2009: 190–1). The FKTU also “revealed its anti-workers characteristics clearer than ever before” (Chang, 2009: 103). However, these suppressive laws, abuses of policemen, and interventions of the pro-capitalist unions could no longer stop the rising labor movements. The pro-capitalist enterprise unions and the FKTU leadership, for example, “faced growing resistance from below against their authority” (ibid.).

⁸⁹ Also, see Kim (2000: Chapter 4).

⁹⁰ The details were analyzed by Chang (2009: 101).

In the mid-1970s, the labor organizations were heartened by successful movements in the early 1970s, and further mobilized intensely in strategic industries, especially shipbuilding and textiles. For instance, organized labor in the Hyundai Shipyard established a study group for worker's rights designed to improve social consciousness among members. It too declared a large-scale protest in 1974, with the support of religious groups and university students. In the same year, more than 1,000 female workers at the Bando Company executed strikes against hazardous working conditions, low wages, and the prohibition of an independent union (Kwon and O'Donnell, 2001: 30). Other important incidents were the Chong-gye Clothing workers' struggle and the Dongil Textile Company's struggle between 1976 and 1978 (Chang, 2009: 103, 171).

During the second global oil crisis, the South Korean economic slowdown aroused further social unrest. For example, in August 1979 a wig manufacturing company named Y.H. Trading went bankrupt and could not pay its workers. The workers went to request compensation and the government had to send around a thousand riot police officers to cope with the situation (p. 136). This incident ended in tragedy. Many workers were injured and one female worker died. The US State Department even branded the incident "brutal and excessive" (Minns, 2001: 183).

Putting these details into the larger, more long-term picture, from 1963 to 1979 organized labor movements and disputes were sustained. While they were frequently repressed, they revived again and again. All indicators of labor organizations such as unions, union members, and rates of unionization were improved (**Table 3.8**).

Table 3.8: Details of labor disputes and unions, South Korea, 1963-1979

Year	Disputes	Unions	Union members (thousand)	Unionization rate (A)	Unionization rate (B)	Noted
1963	-	1,820	224	20.3	9.1	
1964	126	2,105	272	23.3	11.5	
1965	113	2,255	301	22.4	11.6	Contraction
1966	117	2,359	327	22.7	11.8	
1967	130	2,619	378	22.2	12.4	
1968	135	2,732	413	21.1	12.1	
1969	94	2,939	445	21.3	12.5	Contraction
1970	90	3,063	473	20	12.6	Contraction
1971	109	3,061	487	19.7	12.7	
1972	-	2,961	515	20.4	12.9	
1973	-	2,865	548	20.4	13.2	
1974	-	3,352	656	22.1	14.8	
1975	133	3,585	750	23	15.8	
1976	110	3,854	846	23.3	16.5	Contraction
1977	96	4,042	955	24.3	16.7	Contraction
1978	102	4,301	1,055	24	16.9	
1979	105	4,394	1,088	23.6	16.8	

Source: Modified from Koo (2000: 231)⁹¹

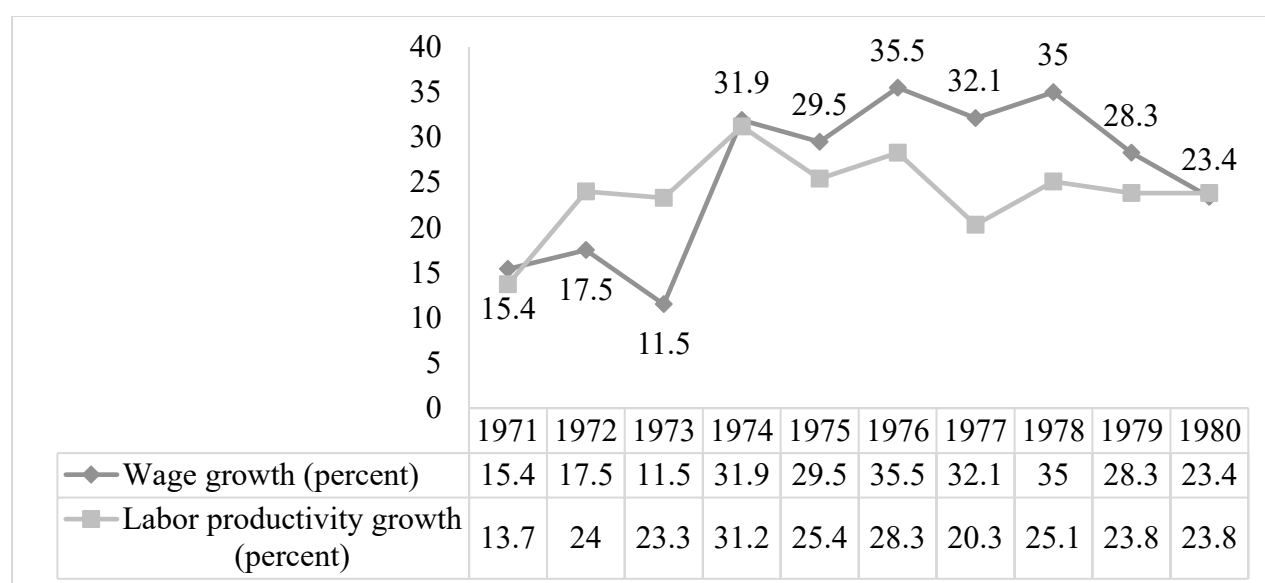
These labor disputes⁹² significantly explained how nominal wages increased by more than 200 percent across sectors from 1965 to 1971 (Amsden, 1989: 207). The increase in wages in the late 1960s triggered South Korean policy-makers and conglomerates to adjust to HCIs.

⁹¹ Unionization rate (A) is the proportion of union members to the number of regularly employed non-agricultural workers. Unionization rate (B) is the proportion of union members to the total number of employed workers.

⁹² The disputes were not limited to domestic areas. For example, 300 Korean workers in Hyundai Engineering and Construction Corporation (HECC), who operated in the Pattani-Narathiwat Highway Project, Thailand, declared strikes in 1967 (Kwon and O'Donnell, 2001: 55). A decade later, in 1977, 3,000 Korean workers mobilized violently against low-wage payment at one of Hyundai's construction sites in the Middle East (p. 30).

The process of transforming into HCIs demanded more skilled workers, pulling wages in industrial sectors up to a higher level.⁹³ After 1973 the nominal wage increased by more than 23 percent a year straightforwardly toward 1980 (**Figure 3.2**).

Figure 3.3: Nominal wage growth and labor productivity in all industries except farming, 1971-1980

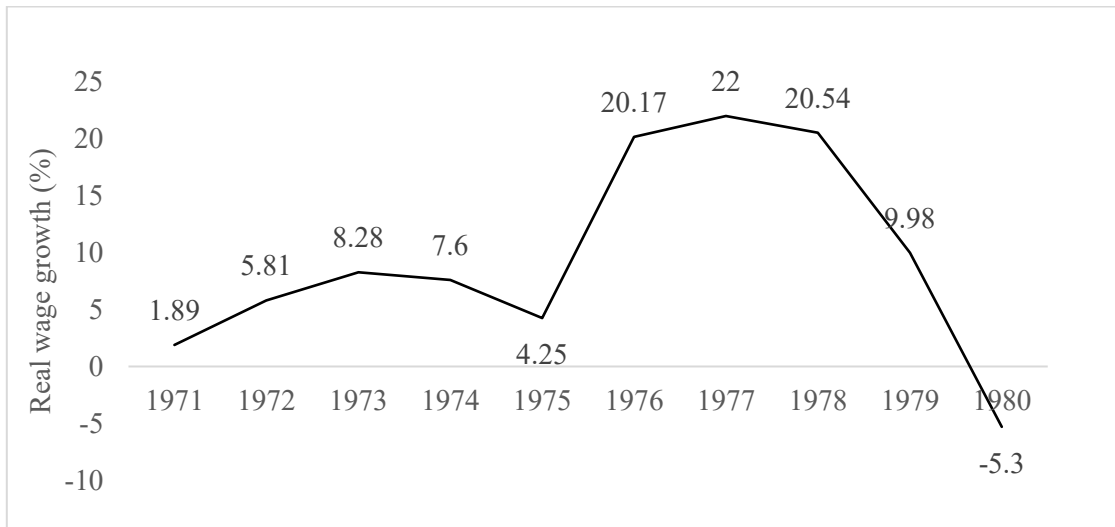


Source: Yoon (1999: 28)

As seen in **Figure 3.4**, real wage growth improved from 1.89 percent in 1971 to 8.28 percent in 1973. It briefly declined between 1973 and 1974, when the government introduced a series of emergency measures (mentioned above) to control politico-economic movements. After that, real wage growth jumped to more than 20 percent per year from 1976 to 1978. These wage surges in the 1970s markedly changed the idea of economic development of Park's technocrats and the adjustments of conglomerates in the next decade.

⁹³ In the 1970s, unlike the late 1960s, there were other complementary effects from (1) a scarcity of skilled workers in HCIs and (2) efficiency wages for learning in relatively high-tech sectors (see Amsden, 1990).

Figure 3.4: Real wage growth of employees, South Korea, 1971–80



Source: Calculated by author based on (1) nominal earnings growth data from Yoon (1999) and Kim and Kim (2003); and (2) inflation rates from the World Bank (accessed April 16, 2021)

The Wage Surge and Transformation of Public Policies in the 1970s

In 1965, when Park and some bureaucrats desperately needed to develop the heavy and chemical industries (HCIs), the US government and foreign-trained technocrats felt the idea was akin to committing suicide because there was a high population growth rate after the Korean War, which was expected to flood large numbers of workers into the market until 1985. While the rapid economic growth created more than 500,000 new jobs every year, the unemployment rate increased continually, and wages remained low. Hence, the HCIs that required high capital intensity did not fit the national comparative advantage that was labor-intensive manufacturing. These technocrats then pleaded with the deputy prime minister and the head of EPB, Yong Chang-Ki, to convince Park to postpone the HCI development (Clifford, 1998: 59–60).

Park's idea of HCI development faced resistance within the government until the early 1970s. In 1971, when the condition of cheap labor was demolished, the tension was mostly

solved. Park could then fulfill his intention to create HCIs such as steel-making, shipbuilding, chemical products, and automobiles. These industries were seriously implemented during the third five-year plan (1972–5). In order to achieve the plan, the government carried out three significant tasks.

First, Park founded a new government entity named the “Special Heavy and Chemical Industry Committee,” which took responsibility for creating an action plan for HCI development and for carefully supervising progress of the plan.

Second, the investment promotion was modified to promote HCIs. For instance, the policy loan occupied by companies in light manufacturing was incrementally reallocated to six targeted heavy industries. Consequently, the loan occupied by HCIs increased from around 30 percent of the total in 1973–4 to 60 percent in 1975–7 (Chen and Ku, 2000: 115). The public services related to operating costs (i.e., water supplies and electricity) were discounted by 20–40 percent of the normal rate for targeted HCIs (Amsden, 1989: 297).

Third, these supportive schemes focused on a short list of *Chaebols*. Well-known Chaebols were Hyundai, Daewoo, Lucky-Goldstar (LG), and Samsung. For example, Hyundai’s founder, Chung Ju-Yung, began his business by taking over an auto repair shop in the 1940s. He expanded his business to the construction sector and won contracts from the US military and the Rhee government in the 1950s. Chung gained attention from Park by bidding to reconstruct the Han River Bridge and finishing the project effectively. In the late 1960s Park granted Hyundai permission to build the 424-kilometer highway that linked Seoul to Pusan. In the 1970s Park pushed Chung into developing two ambitious projects for Hyundai and also the nation: a large-scale shipyard; and the auto industry (Clifford, 1998: 115–18).

Another example was Kim Woo-Choong, who established a trading company named Daewoo in 1967. His company exported textile products abroad at the height of the textile

industry. The company's revenue soared from 580,000 USD in 1967 to 4 million USD in 1969. He also quickly expanded the company by taking over other firms related to garments, finance, basic machinery, and cosmetics. From 1975 Daewoo had 23 companies, 30 overseas branches, 35,000 employees, and 250 million USD in annual sales. In the 1970s Daewoo shifted to the heavy industry by acquiring the South Korean Machinery Manufacturing Corporation from another Chaebol. When General Motors (GM), the US automaker, wanted a new business partner, the South Korean Development Bank recommended Daewoo. The government also forcefully requested that Daewoo take over the Okpo shipyard in 1978 (p. 118–23).

LG followed a similar pattern. The company was founded in the 1940s when its aim was to produce consumer products such as cosmetic cream, toothbrushes, soapboxes, and combs. In the 1960s, LG expanded to produce radios, televisions, elevators, and escalators. In the 1970s, LG upgraded further to produce a semiconductor and invested heavily in the chemical industry. The pattern was clear. These Chaebols began producing light manufacturing during 1940–60. Afterward, it was the state that stimulated these Chaebols, switch to constructing heavy and chemical industry in the 1970s. All three components of the 1970s industrial policy are presented in **Table 3.9**.

Table 3.9: The summary of selected industrial policies in the 1970s

Policies/tasks	Methods	Outcomes
Organizational reform	Established new entity named the Special Heavy and Chemical Industry Committee	Delivered supportive policies and supervised the outcomes

Policies/tasks	Methods	Outcomes
Investment promotion in HCIs	Reallocated resources such as policy loans and cheap capital to support HCIs	Increased cheap capital for new investment (especially in HCIs)
Chaebol promotion	Encouraged domestic or joint-venture conglomerates to invest in HCIs	Forcefully pushed the increase of capacity of the Chaebols in HCIs

Increasing Wages and the Response of Businesses in the 1970s

The increase in disputes and wages in the late 1960s not only created a chance for Park to modify public policies toward HCIs, but also transformed the structures and practices of businesses in the 1970s. Generally, when businessmen encountered persistently increased wages, they had an incentive to utilize relatively cheap capital, as well as other strategies. In the 1970s, when wages increased further and the government flooded easy capital into the HCI sectors, the conglomerates were encouraged to diversify their businesses toward HCIs. As part of this process, capital was spent acquiring new technologies because the Chaebols had no experience or local innovation to accomplish the task.

The increase in wages did not occur equally across all sectors. As illustrated in **Table 3.10**, light manufacturing industries gained a lower rate of wage increases. Workers in the textile industry, for example, gained 227 percent between 1965 and 1971. A similar rate occurred in wood and cork, leather, basic metals, and machinery. In contrast, the HCIs, which required a high ratio of capital investment, underwent a higher rate. Workers in the chemical industry, for example, got 354 percent of the increased wage. Additionally, the petroleum,

electric machinery, and transportation equipment industries faced 415 percent, 363 percent, and 313 percent of the increased wage, respectively.⁹⁴

Table 3.10: Wage increases in selected manufacturing sectors, 1965-1971

Sectors	Percent increase 1971 over 1965
Textile	227
Wood and cork	222
Paper	288
Leather	215
Rubber	175
Chemicals	354
Petroleum and coal	415
Electric machinery	363
Transportation equipment	313

Source: Modified from Amsden (1989: 207)

In the labor-intensive manufacturing sectors, three strategies⁹⁵ were adopted in response to the increase in wages. The first strategy was squeezing the labor productivity, as applied by most companies in the textile industry.

⁹⁴ There were at least two explanations for the sources of the disparity. First, the government and the companies needed to maintain cost competitiveness in the exporting sectors, which were mainly concentrated in light manufacturing. Therefore, these sectors encountered more severe oppression and their wages increased less. Second, the nature of the light industries required a lower degree of physical strength, which allowed companies to employ female workers. Also, during the 1960s–70s, female workers had lower social prerogative than males in the labor market; therefore, they received lower wages. These low-paid female workers accounted for 44 percent in 1971 (Nam, 2009: 188). In HCIs, companies did not have much experience related to new technologies. Hence, they offered incentives, including high-paid contracts for workers, the so-called efficiency wage. In this case, payments for HCIs were higher than in light manufacturing (Amsden, 1989).

⁹⁵ The fourth strategy was diversifying businesses to other sectors. However, except for limited numbers of textile-based companies and Chaebols, this strategy was not successful (see Amsden, 1989: 259).

The second strategy was creating joint-venture companies with advanced trade partners, especially Japan (Amsden, 1989: 259). After South Korea and Japan declared political normalization in 1965, the price competitiveness of Japanese firms declined because of the higher wage rate. Therefore, it had an incentive to shift production bases to South Korea, especially in labor-intensive industries. Japanese companies also invested in Korea (as well as Taiwan) for accessing to the US market because the US government supported these economies in order to fight with Communism in the region (Pirie, 2018: 137). As can be seen in **Table 3.11**, between 1966 and 1971 South Korean shares increased significantly.

Table 3.11: South Korean shares of the US market in 1966 and 1971 (in percentages)

	1966	1971
Clothing/textiles	3	13
Clothing	2	14
Plywood	17	37
Footwear	3	4
Other manufactures	7	18

Source: Castley (1997: 98)

The third strategy was to insert more capital and new machines into production processes. The capital/labor ratio of the textile industry, for example, increased from 1.72 million won per worker in 1966 to 2.29 million won per worker in 1967–71. However, by and large, leading firms in the South Korean textile industry unhurriedly adopted the new machines

and technologies,^{96,97} when technology changed from the shuttle loom to the open-ended rotor in the early 1970s. The pace of development was slower than in Hong Kong, Singapore, Japan, the UK, USA, Germany, Mexico, and even Brazil (Amsden, 1989: 256).

Similar strategies were also applied by companies that operated in the heavy and chemical industries. However, they were more proactive and successful in applying capital and new technologies.

The Hyundai Motor Company (HMC), for example, began to acquire technology from various countries in 1974. The company obtained engine block design, transmissions, and axles from Japan; factory construction, layout, and internal combustion engines from England; and car design from Italy. All of the technological transfers accounted for approximately 18 licenses for the first car model, named “Pony.” The number of the company’s technological transfers reached 30 licenses in 1979 (p. 175). HMC also fully utilized the ideology of the new community circle or quality circle to discipline workers, persuading workers to supervise themselves. The mechanism was simple, “every five or six stations on every line has its own quality circle. Quality circles meet once a week, on average... Quality circles set plans about how to achieve improvements in operations. Then, they check actual progress against their goals” (p. 178).

⁹⁶ Although between 1962 and 1981 the textile industry gained a moderate level of foreign investment (FI), which accounted for 7.2 percent of total FI, it invested very little in licensed technologies. For example, the textile industry invested just 1.6 percent of the total licensed technologies and paid only 1.1 percent of the total royalty fee. On the contrary, some heavy industries occupied lower FI but invested in more relevant technologies. The cement industry, for instance, got only 3.2 percent of the total FI; however, it invested around 3 percent of the total licensed technology and paid approximately 2.4 percent of the total royalty fee. Moreover, other HCIs, such as electrical machinery and transport equipment, simultaneously gained high FI and high technological investment (Amsden, 1989: 263).

⁹⁷ Because of the underinvestment in new machines, more than 30 percent of sewing, knitting, dyeing, looming, and spinning machines became obsolete in 1982 (Amsden, 1989: 258). While labor productivity increased steadily by around 70 percent in spinning and weaving activities during 1955–81 (p. 250), it was based on outdated technology. To put it in another way, one might be outstanding in making textiles with an old method. However, this did not mean the quality of work was better than that produced by rookies using a new machine for the same task.

Development of the shipbuilding industry is represented by the Hyundai Heavy Industry (HHI).⁹⁸ The company acquired technology from abroad from 1972. For example, the dockyard and ship designs came from the Scottish companies *A&P Appledore* and *Scotlitgow*, respectively. Besides, HHI also learned its production know-how from the Kawasaki Shipbuilding Company of Japan. These supportive companies helped HHI in various ways; for instance, they provided knowledge and connections to their suppliers. They also trained South Korean workers at their own sites. For example, in 1974 around 200 workers were sent to Japan for training. The Kawasaki even subcontracted HHI to build two tankers; therefore, HHI could practice what it had already learned. During 1978–9, HHI also implemented the quality circle (pp. 276–7, 282).

This “scientific” labor management and the higher degree of technological licensing did not lead to less exploitative labor regimes. Instead, the company intensified the militaristic features of production. For example, “workers were required to have short hair, attain military style collective meetings before work.” Besides, the “Preference in the appointment of senior management in Hyundai was given to retired military officers, while many production workers were employed soon after completing national military service” (Kwon and O’Donnell, 2001: 76). These characteristics resulted in a contentious relationship between managers and workers in the 1970s and determined the militancy of the labor movement in the 1980s.

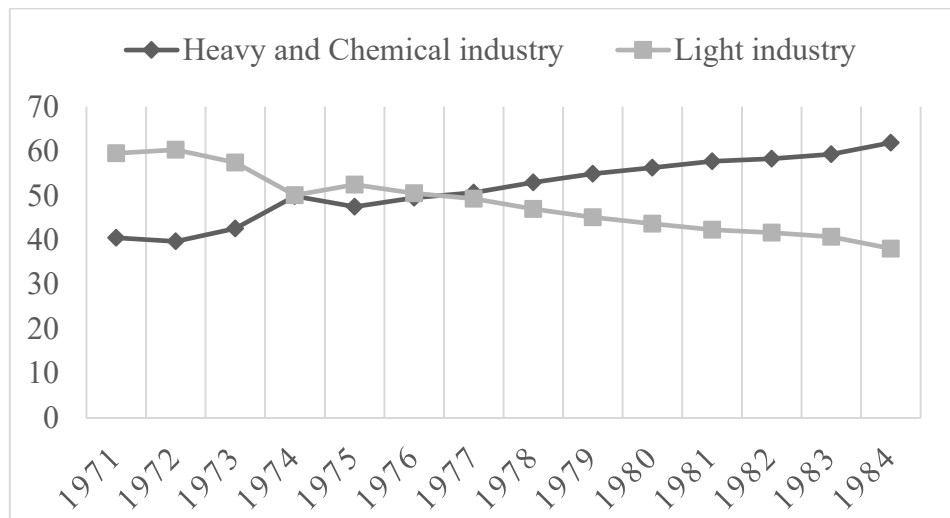
In the case of steel-making, the government had already tried three times, in 1961, 1962, and 1967, to establish a steel factory, but all their efforts failed (Amsden, 1989: 295). In 1970 the government successfully pushed the project by providing low-interest rate loans and

⁹⁸ While HHI was named Hyundai “Heavy” Industries, it was defined initially as a “large-scale” labor-intensive industry because the company based its core activity on numerous production workers. However, after the large-scale strikes in 1974, the company adopted a new labor-management structure and recruitment (Kwon and O’Donnell, 2001: 87), employed more capital, and engaged more in industrial and product upgrading. For example, HHI began producing more specialized and advanced ships such as car ferries in 1979 and refrigerated cargo vessels in 1982 (p. 82). In other words, HHI proactively upgraded to more capital-intensive and sophisticated products in the late 1970s.

discounting various public service fees for the Pohang Iron and Steel Company (POSCO). The price of water and gas supply, for instance, was discounted by around 20–30 percent. Most technical support in the initial phase of development depended on Australian and Japanese firms. For example, 16 plants with facilities to cover the full spectrum of integrated steel mill activity belonged to Japanese companies. Furthermore, 597 personnel were trained on or off the job in Japan and Australia in a total of 11 fields (p. 302).

While cheap capital and more expensive labor costs increased the incentives for HCIs, the increase in labor costs still did not erode the cost competitiveness of these industries. The share of labor costs in the total cost of Japanese shipbuilding firms was 2.5 times higher than in South Korea (p. 272). Moreover, the cost of producing cold-rolled coils in South Korea was around 39.6 percent of that in Japan, 35.7 percent of West Germany, and 19.4 percent of the USA (p. 298). These three examples – HMC, HHI, and POSCO – were not exceptional cases but represented the process of South Korean development in the seventies. The share of HCIs in terms of value-added incrementally rose from around 40 percent in 1971 to approximately 50 percent during 1974–77, and finally surpassed the share of light industries in 1978 (**Figure 3.3**), one year before Park was assassinated.

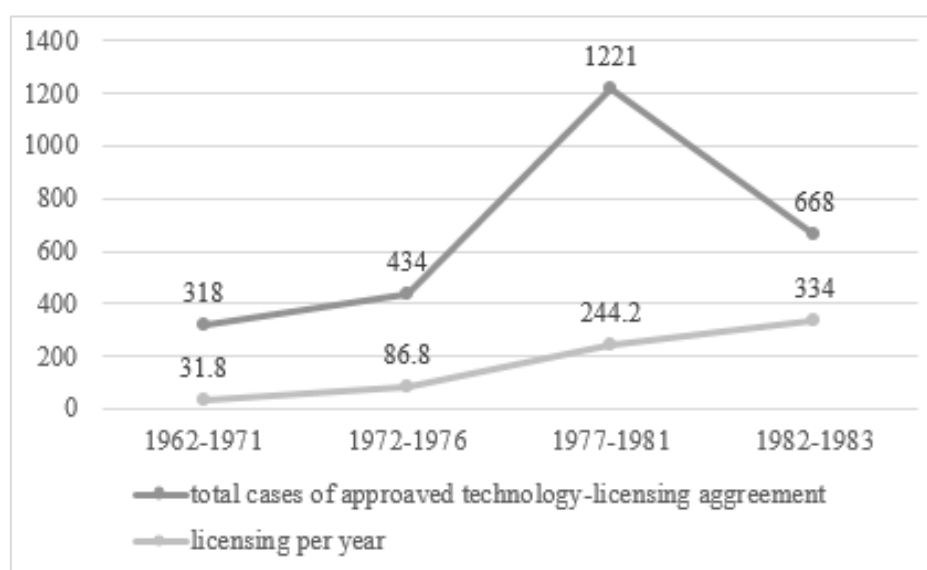
Figure 3.5: Share of light and HCIs in total manufacturing values in South Korea



Source: Analyzed from the data of Amsden (1989: 58)

Unlike development in the 1960s, when growth was generated from resource mobilization and labor exploitation, the technological transfer of the South Korean manufacturing sector increased substantially after the 1970s. The approved technology licensing soared from 31.8 cases a year in 1961–71 to 86.8 cases a year in 1972–76, and 244.2 cases a year in 1977–81, which was an almost threefold increase in a decade of HCI promotion (**Figure 3.6**). However, in the 1970s, the technology had still mostly not been created by local researchers and firms. The pattern of technological transfer and imitation shifted to research and development (R&D) in the 1980s.

Figure 3.6: Cases of approved technology-licensing agreement



Source: analyzed from data of Amsden (1989: 233)

Chapter 4:

South Korean Developmental Labor

Triggered the High-Tech State

This chapter will illustrate the four processes that delineate the mechanisms of how developmental labor led Korea to successful catch up. First, after a very brief period of labor repression, between 1981 and 1982, organized labor abruptly resumed its movements and imposed radical strikes on Chun's authoritarian regime and its depraved working conditions (i.e., low wages and long working hours). Second, the government responded to these militant movements by transforming its policies to support new industries that utilized more technology instead of capital and labor. Third, businesses also adjusted their strategies to employ more labor-saving technologies and diversified⁹⁹ their activities to the high-tech and high value-added sectors. Fourth, these adjustments gradually transformed the labor institutions during the 1980s–90s, which were finally became the new type of “labor market” in the 2000s.

4.1 Organized Labor and Wage Increases After 1980

The Death of the Strong Man

On October 26, 1979, Park Chung-Hee had dinner with Kim Jae-Kyu, the KCIA chief. They had roasted mushroom and slices of meat, smoked Sun cigarettes, and drank Chivas Regal.

⁹⁹ According to Imbs and Wacziarg (2003: 64), “countries diversify over most of their development path.” And “the estimated turnaround point occurs quite late in the development process and at the surprising[ly] robust level of income per capita”. The turning point occurred when annual income per capita reached approximately 8,600–9,600 USD (p. 69). Korea's experience was relevant to this argument. It was still diversifying rather than specializing in the 1980s.

After they had finished their meals, they discussed the political unrest in Pusan and Masan. Park blamed the KCIA chief for being incapable of maintaining social order, and Park's advisor, Cha Chi-Chol, added more criticisms before Kim Jae-Kyu left the room. He returned with his pistol and said, "Your Excellency, how can you run the government with an insect like this?" Then Kim shot Park and his advisor to death. While Kim Jae-Kyu triggered the bullet that ended the Park regime, he did not seize power. Choi Kyu-Hah, the prime minister, became the president on December 6 through the country's Electoral College (Clifford, 1998: 138–9).

On December 12 Chun Doo-Hwan, chief of the Defense Security Command, began the first step in creating a coup. He sent soldiers to arrest several influential figures in the army, including the martial law commander Chung Seung-Hwa and Defense Minister Noh Jae-Hyun (p. 143). He purged the potential opposition one-by-one until the last strike on May 16, 1980. Ten political figures, including Kim Jong-Pil and Kim Dae-Jung, were captured at midnight. The next day, Chun went to the cabinet room with fully armed soldiers and ordered all ministers to resign (p. 157). After he took power, Chun realized that two difficulties were attached to the presidential seat – economic slowdown and confrontational civil movements.

In 1979 real economic growth was around 6.5 percent, the lowest rate since 1965 (except for a short period of 1972, when growth temporary declined). Export growth also contracted to –3.8 percent. The debt per equity ratio reached its peak at beyond 400 percent. Park realized these problems and ordered technocrats to prepare for a stabilizing package in 1978. However, Park did not have a chance to implement the plan. After Park died, in 1980, gross national product (GNP) dropped to –5.2 percent. All GNP compositions, except government expenditure and exports, became negative. The most critical part was investment, which shrank to –23.7 percent because investors lost confidence in South Korea, where the strong man had already gone (Amsden, 1989: 56–7; Shin and Chang, 2003: 14).

The two factors that prevented movements opposing the Park government were acceptable growth rates and repressive measures.¹⁰⁰ When Park died, the economy slipped into recession, politics entered a vacuum, and opposing social forces¹⁰¹ were released.

The Rise of an Untamed Force

At the beginning of 1980, workers dethroned pro-management leaders and replaced them with pro-worker members. On April 21, 700 miners in the Sabuk area went further by hunting down the union leaders who had betrayed them by accepting benefits from the mine owner and failing to fight for members' welfare. Strikes initiated by local unions and independent groups occurred throughout the country. Between January and April, just four months, the number of labor disputes exploded to 719 cases, or around 180 cases a month. Of the total disputes, 534 cases were over unpaid wages (Clifford, 1998: 155). As shown by **Table 4.1**, the leaders of these labor movements were sacked and arrested by Chun's government seven times more than under Park's government.

¹⁰⁰ KCIA had warned Park about the potential risk of social disorder if the government failed to maintain economic growth and employment (Clifford, 1998: 135).

¹⁰¹ The labor movement was not the only one challenging force during the political vacuum. Another was the student movement, which requested democratization and successfully formed the big-enough movement in Gwangju city in 1980. Chun sent troopers and paratroopers, equipped with M-16s and other kinds of weapon, to violently crush demonstrators at Gwangju. The result left an ugly scar on the Chun regime; however, he promptly afforded it. Estimated by the opposition, approximately 2,000 people died. The enforcement of cruel measures was not limited to civil offenders, but covered civil bureaucrats and the military. For example, over 14 days, between July 9 and 22, the Chun government sacked 6,811 officials, including 12 percent of the top echelon (Minns, 2001: 186; Clifford, 1998: 165). "Until the end of his reign, he captured at least 57,561 offenders. Of those, 3,052 were brought to trial at a military court, 38,259 were sent to purification camp, and the rest set free with warning" (p. 167). In these terms, Chun not only repressed the labor movement but also implemented the wholesale oppression of society.

Table 4.1: Labor repression by presidency, South Korea, 1971-2000

Period	Presidency	Number of workers sacked	Number of workers arrested	Sacking and arrests combined	Sacking and arrests per year
1971-1979	Park Chung-Hee	514	24	538	60
1980-1987	Chun Doo-Hwan	<u>2,957</u>	<u>220</u>	<u>3,177</u>	<u>454</u>
1988-1992	Roh Tae-Woo	1,146	1,974	3,120	624
1993-1997	Kim Young-Sam	537	514	1,051	210
1998-2000	Kim Dae-Jung	375	413	788	263

Source: Liu (2015: 119)¹⁰²

After a brief period, between 1980 and 1982,¹⁰³ organized workers regained their momentum and increased their activities without interruption, reaching a peak in 1987.¹⁰⁴ As mentioned in **Table 4.2**, the number of strikes and lockouts increased from 88 to 3,617. The number of workers involved increased from 9,000 to 934,900. Finally, the number of workdays lost increased from 11,500 to 6,946,900.

¹⁰² Also, see Chang and Chae (2004: 439). Another interesting data set was presented in Lee (2011: 108). They are deaths, imprisonment, and cases of firing related to labor issues.

¹⁰³ After Chun consolidated his power between 1980 and 1982, he gradually lowered his guard for various reasons. First, he believed that his power was strong enough to cope with opposing forces. This was misplaced confidence. Second, Korea was the host of the 1986 Seoul Asian Games and the 1988 Seoul Olympic Games, so Chun wanted to portray a “good and peaceful” government to the world. These factors drove Chun to decrease his oppressive measures in the mid-1980s. Instead of being satisfied by the relaxed measures, the democratic alliance, including labor unions and the opposition party, namely, the New Korea Democratic Party (NKDP), took the opportunity to act against the authoritarian regime (Veerayooth, 2019: 52).

¹⁰⁴ On Christmas Eve of 1984, for example, in a small electronics company located in Pusan, a manager told the workers that the company could not pay the October wages, which had already been delayed for two months. Chung Dong-Keun, a young worker frustrated by the incident, initiated a reading group encompassing around 10 percent of the company’s workers to learn about the legal rights of labor. By February 1985, the company still had not paid a salary for four months. Chung and his friends then imposed a sit-in strike. After five days, the company agreed to pay their wages and gave three holidays for workers. Between February and May, the company again could not pay their wages and Chung went to strike for around fifteen days. This time, Chung broadened his strategy. He went to the newspaper and sent a petition to government entities. The company finally paid back the overdue salaries and reduced working hours from 78 to 66 (Clifford, 1998: 278–9). This event in a small company was a microcosm of the national phenomenon. During 1985–6, labor disputes increased substantially, in terms of both frequency and militancy (Liu, 2015: 58–9).

Table 4.2: Selective data of Labor movements in South Korea, 1980-1990

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Number of strikes and lockouts	206	186	88	98	114	256	276	<u>3,617</u>	<u>1,873</u>	<u>1,616</u>	322
Workers involved (thousands)	49	34.6	9	11.1	16.4	28.7	46.9	<u>935</u>	<u>294</u>	<u>409</u>	134
Workdays not worked (thousands)	61.3	31.1	11.5	8.7	19.9	64.3	72	<u>6,947</u>	<u>5,401</u>	<u>6,351</u>	1,836 ¹⁰⁵

Source: Modified from Kim Eun-Mee (1993: 237)¹⁰⁶

Comparing the data of the movements between 1978–81 and 1986–89, **Table 4.3** shows that labor strikes and lockouts, involved workers, and workdays lost increased 12.5, 15.5, and 144.3 times, respectively. During the second half of the 1980s, the genie was out of the bottle.

Table 4.3: Basic statistics of labor disputes in South Korea during 1978-1981 and 1986-1989

	1978-1981 (A)	1986-1989 (B)	B/A
Number of strikes and lockouts	599	7,514	12.5
Number of workers involved	108,412	1,684,534	15.5
Total workdays lost	130,107	18,771,171	144.3
Number of workers per dispute	181	224	1.2
Workdays lost per dispute	217	2,498	11.5
Workdays lost contributed by each worker	1.2	11	9.3

Source: Liu (2015: 110)

¹⁰⁵ Minns (2001: 189) collected labor dispute data and showed the same numbers between 1986 and 1989; however, the data for workdays lost in 1990 was different. It was 4,487,000 days instead of 1,836,000 days. Yoon (1999: 27) also reported the same number as Minns.

¹⁰⁶ Also see Koo (2000: 231)

Looking at the details of the movements, from the mid-1980s organized labor worked side-by-side with student movements (*No-hak Yondae*) and religious groups.¹⁰⁷ For example, it was common to see leaflets of student organizations demanding more working-class benefits. “In October 1984, a series of student demonstrations in and around Seoul demanded free trade unions, guaranteed minimum wages and other basic working conditions” (Minns, 2001: 186).¹⁰⁸ At the same time, church-based associations such as the Urban Industrial Mission and the Young Catholic Workers actively supported the labor union movements (Kim Eun-Mee, 1993: 236).¹⁰⁹ Militant strikes by disobedient labor unions occurred in many companies, such as the Daewoo Motor Company, the Daewoo Apparel Company, and the Kuro Allied Strike.

In 1985 an important incident took place in the Daewoo Automobiles Union. Members of the union discovered that their union leader had agreed with the management to increase wages below inflation, resulting in around 300 upset members abruptly taking over the union office and declaring strikes. This action was supported by other members; therefore, the number of participants in the strike increased to 2,000 people on the tenth day. The manager called for help and the government sent 8,000 riot police officers to the factory. They finally reached the conclusion that the company would agree to increase wages by 18 percent, which was a satisfactory rate demanded by the workers (Chu, 1998: 196). This reflected the fact that the autonomous faction within the government-sponsored union had already arisen.

¹⁰⁷ The middle classes also welcomed these labor movements. As Hagen Koo evaluated, “The weakness of organized labor and severe government repression on the labor movements generated pro-labor and pro-mass orientation among the middle classes” (Koo, 1991: 494).

¹⁰⁸ An unofficial estimate stated that more than 3,000 students secretly covered themselves and penetrated industrial plants helping blue-collar workers to establish labor unions, or at least to form some plant-based organizations (Kim Eun-Mee, 1993: 236).

¹⁰⁹ Minns (2001: 185) translated these two organizations using different words. They were the Protestant Urban Industrial Mission (UIM), and the Young Christian Workers (JOC), respectively.

In the same year, at the Kurodong Industrial Estate, the Daewoo Apparel Union peacefully called for a symbolic sit-in one day before wage negotiations. This action was judged by the court to be an illicit movement, and the president of the labor union was imprisoned. Surprisingly, it was not only the Daewoo unionists who struggled with the case; various organizations, including 4 other unions, 22 church and civil organizations, and other student groups, supported them. While these wide-ranging alliances were finally crushed by the police, which led to approximately 200 injuries, 100 arrested participants, and 3,000 dismissed workers (ibid.), this phenomenon reconfirmed that the labor movement continually went beyond being factory-based.

In early 1987 organized labor, together with other social forces, successfully formed a grand coalition named the National Center for Democratic Constitution (*Guk-bon*) (Veerayooth, 2019). This alliance effectively forced Chun to step down and pressure his successor, Roh Tae-Woo,¹¹⁰ into announcing “the June 29 Declaration that covered eight points, the most important of which were a direct presidential election, the rehabilitation of political criminals, and the guaranteeing of media freedom” (p. 53).

“In the months immediately following the 29 June Declaration, workers went on to conduct the biggest mass strike in the history of South Korea,” the so-called The Great Workers’ Struggle (Gray, 2008: 62). The struggle began in mid-July of the same year, “not in Seoul, the political heartland, but in the Southern city of Ulsan, the most intensive industrial town in South Korea” (Chang, 2009: 118). Certainly, employees tried to control the radical unions. For example, Hyundai’s subsidiaries in Ulsan temporarily shut down factories and deployed save-the-company squads to fight the organized workers (ibid.).

¹¹⁰ After the 1987 election, because of internal fighting between two democratic leaders – Kim Young-Sam and Kim Dae-Jung – Roh won the election with 36.6 percent of the vote. If the two Kims had not fought each other and merged their supporters, they would have had more votes than Roh. Kim Young-Sam got 28 percent of the vote and Kim Dae-Jung had 27 percent of the vote in the election (Veerayooth, 2019: 54).

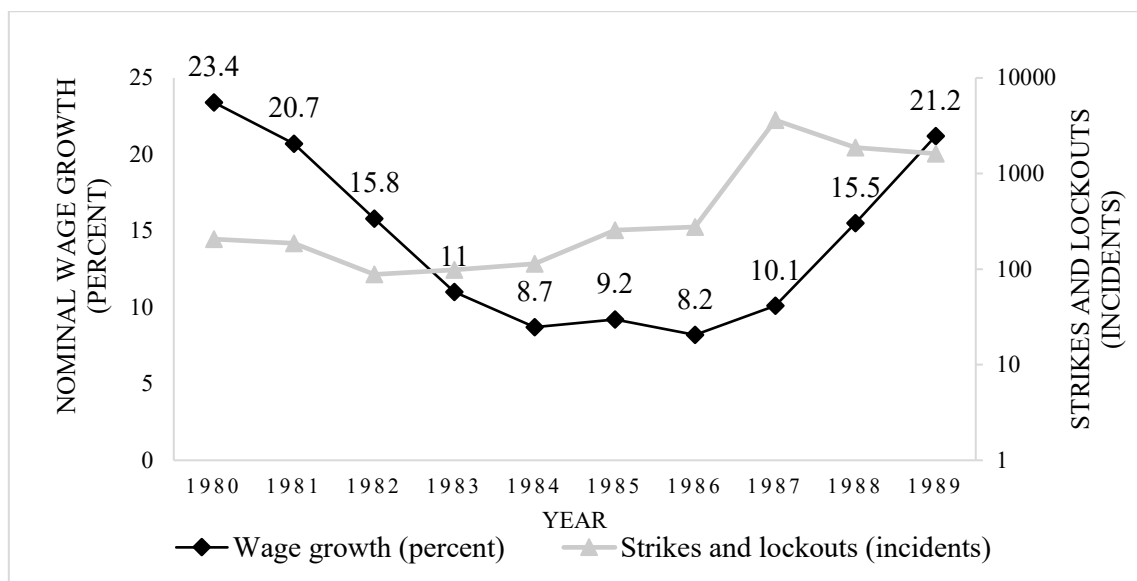
However, they could not put the genie back in the bottle. Between July and August 1987, 14 independent labor unions were founded in Ulsan (Kwon and O'Donnell, 2001: 117). "Between July and the end of 1988, 3,500 workplace struggles took place, involving a third of all workers in South Korea." Moreover, "between 1987 and 1990, 45.6 percent of union presidents stepped down for various reasons, and 19.3 percent of them were forced to do so through a vote of no-confidence by rank and file workers" (Gray, 2008: 62). This successful phenomenon lifted the confidence of the organized workers, who adopted a strategy of "strike first, bargain later" (Bae et.al., 1997: 148).

Later, the government declared that it "would not intervene in labor-management disputes" anymore (Kim Eun-Mee, 1993: 235). At the end of the decade, "The average companies suffered from 19.2 days of labor strikes in 1989, up from 5.3 days in 1987. In 1989 alone, labor disputes cost a total of about \$6.2 billion in production as well as \$1.3 billion in reduced exports" (Kim Linsu, 1993: 369). However, popular sentiment still supported organized labor. "The survey conducted in 1987 found that 56.9 percent of people believed that the bosses were responsible for labor disputes. Another 18.7 percent blamed the government. Only 6.6 percent blamed the unions" (Minns, 2001: 187).

During the same period, on average, 54.26 percent of all dispute cases aimed to increase wages (Suh, 2009: 60), which reconfirmed the causal link between the labor movements and wage improvement. In **Figure 4.1**, we can see that nominal wage growth increased continually after the labor movements were revived in the mid-1980s.¹¹¹ Moreover, real wage growth remained at more than 5 percent from 1982 to 1986. After the explosion of democratic and labor movements in 1986, real wage growth increased to its peak in 1989 (**Figure 4.2**).

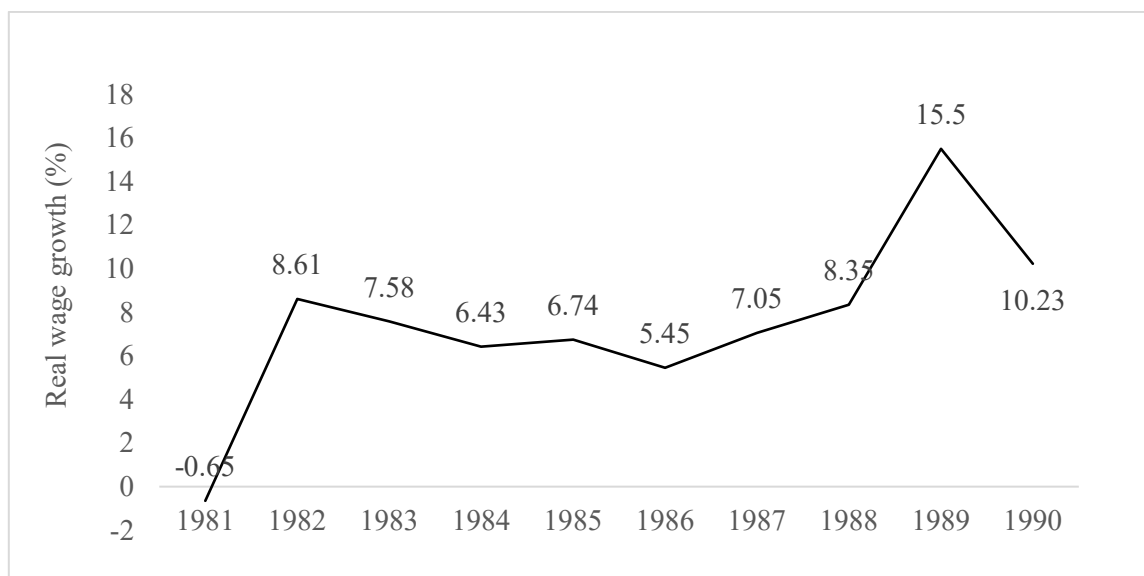
¹¹¹ Roughly, from 1980 to 1990, the correlation coefficient between the strikes in period [t] and the wage growth in period [t+1] was 0.46. The coefficient between workdays lost and wage growth from 1985 to 1990 was even higher, at around 0.85.

Figure 4.1: Nominal wage growth (percent) and strikes and lockouts (incidents), 1981–1989



Source: Data on strikes from Kim Eun-Mee (1993: 237) and wage growth from Yoon (1999: 27)¹¹²

Figure 4.2: Real wage growth of employees, South Korea, 1981-90



Source: Calculated by author based on (1) nominal wage growth data from Yoon (1999) and Kim and Kim (2003); and (2) inflation rates from the World Bank (accessed April 16, 2021)

¹¹² This wage data has been cross-checked with Heo et al. (2008: 14) and Suh (2009: 65).

Since 1990, the average wages of industrial workers increased to around 579.64 dollars per month, which was slightly higher than the wages in Hong Kong and Singapore, and six times higher than in Thailand. However, this wage rate was still lower than in the USA and Japan (**Table 4.4**). This situation provided the perfect conditions for upgrading. On the one hand, businesses were forced by the wage surge to apply new machines and technologies. Also, businesses needed to switch to higher capital- and technology-intensive industries. On the other hand, labor costs were still lower than for incumbent firms in other advanced economies.

Table 4.4: Nominal wages and wage ratio in South Korea and other selected East Asian countries, 1960–1990

Nations	Wages per month (dollars) / Ratio to US wages (in percentage)			
	1960	1970	1980	1990 ¹¹³
South Korea	35.85 / 9	45.16 / 8	222.23 / 18	579.64 / 30
Hong Kong	-	-	226.8 / 18	575.3 / 30
Singapore	-	-	-	546.78 / 29
Thailand	-	-	61.73 / 5	94.02 / 5
Japan	63.17 / 16	199.77 / 35	1,078 / 86	3,355.77 / 175
USA	385.8	573.32	1,253.43	1,916.51

Source: Modified from Kim Eun-Mee (1993: 237)

¹¹³ Between 1986 and 1991, wage growth rate of Korea increased generally faster than Singapore, Japan, USA, UK, Germany, Norway, and Sweden (Suh, 2009: 67).

4.2 State–Business Adjustments After 1980

Chun’s Stabilization and Industrial Reorganization Package

In order to cope with the economic slowdown and increasing wages, Chun hurriedly appointed well-trained economists to his cabinet and advisors, especially Kim Jae-Ik and Kim Ki-Hwan. Chun trusted the two Kims, and he said to Kim Jae-Ik, “You are the president of economic affairs” (Clifford, 1998: 182). Chun also openly admitted that he knew nothing about economics and requested that Kim Ki Hwan and other advisors teach him in the morning session. These technocrats reached a consensus that South Korea needed to rebalance the economy by controlling inflation, unnecessary spending, and public debt. In January 1980 they declared a policy package (p. 172).

First, there were anti-inflationary measures. For example, the government tightened up on the quantity of money. As illustrated in **Table 4.5**, broad monetary growth¹¹⁴ was reduced from 26.61 percent in 1980–1 to 5.85 percent in 1984. This action continually decreased the consumer price index from 25.01 percent in 1980–1 to 2.27 percent in 1984.¹¹⁵ The government returned to accelerating money growth in 1985 when the economy slowed down again. The government also repressed wages, which its economic advisors agreed upon. Wage growth was strictly controlled during the early 1980s and declined from 21.39 percent in 1980–1 to 8.32 percent in 1984. However, this rate of annual growth was still high compared to other developing countries.

¹¹⁴ Included currency in circulation, deposit money, and quasi-money.

¹¹⁵ All other inflation measurements, such as wholesale price index and non-agricultural GNP deflator, went in the same direction.

Table 4.5: Average periodic rates of change in inflation and its determinants, 1964-1984, (Percent)

Leaders	<i>Park Chung Hee</i>				<i>Chun Doo Hwan</i>			
Periods	1965- 1973	1974- 1975	1976- 1977	1978- 1979	1980- 1981	1982	1983	1984
Inflation								
Consumer price index	11.55	24.77	12.7	16.41	25.01	7.19	3.42	2.27
Wholesale price index	8.78	34.3	10.6	15.21	29.64	4.65	0.24	0.71
Non-agricultural GNP deflator	14.35	27.2	18.13	21.29	22.02	8.49	3.13	2.99
Determinants								
Manufacturing wages	20.45	31.16	35.25	31.48	21.39	14.86	12	8.32
Agricultural prices	12.56	34.86	22.22	22.57	26.07	0.31	3.36	-0.08
Price of imported materials (won)	11.98	27.92	1.58	16.35	37.55	1.33	1.22	4.01
Price of imported oil	18.84	135.18	6.05	21.91	72.16	2.51	-6.56	0.4
Price of non-oil materials	11.6	18.1	0.4	14.77	25.55	0.68	5.72	5.85
M2 (broad monetary growth)	46.44	26.55	33.07	33.04	26.61	28.15	19.52	10.74
Bank credits	42.99	42.54	23.34	40.54	35.82	25.11	15.99	13.08

Source: Modified from Amsden (1989: 101)

Second, the government deliberately devalued the won to regenerate exports. In 1980 the exchange rate depreciated sharply from an average 484 won per USD in 1979 to 607.43 won per USD in 1980 (World Bank, accessed December 6, 2018). Later, it pulled export growth up from -3.8 percent in 1979 to 9.7 percent in 1980 and 17.3 percent in 1981. Conversely, the import growth rate decreased to -7.3 percent in 1981 (Amsden, 1989: 57). While the overall economy stagnated, the total exports of the Hyundai Corporation increased from 493 million USD in 1979 to 1,028 million USD in 1980. A similar pattern was also discovered in the case of Samsung and POSCO during 1979-80 (Clifford, 1998: 177). The number of total exports of

South Korea also increased substantially from 17.5 billion USD in 1980 to 30.3 billion USD in 1985 (p. 241).¹¹⁶

Third, there was a further economic liberalization.¹¹⁷ In 1981 the government privatized several financial institutions and, not surprisingly, the Chaebols bought them. This action also meant that the government intended to provide fewer “policy loans” to Chaebols and HCIs (p. 220). An anti-trust law¹¹⁸ was also enacted (1981) and amended (1986) restricting the abusive practices of conglomerates. Although some scholars argued that the law could not effectively control the Chaebols, it had two critical impacts. First of all, it provided a legal facility to control dominant firms in the later period. Another effect was a psychological signal. The law sent a clear sign to every Chaebol that the state wanted to retreat from a Chaebol-led strategy and intended to groom other small and medium-sized enterprises (Kim Linsu, 1993: 368).

Fourth, Chun’s technocrats purposely forced the Chaebols toward reorganization. For instance, the government no longer injected any emergency loans into a bankrupt and inefficient Chaebol. For example, Kukje, the sixth-largest conglomerate, was forced to give up the company when it had financial problems in 1985 (p. 218). Furthermore, in 1985 the government also requested that the Chaebols declare their core and peripheral businesses (p. 229), forcing them to sell the latter group. Kim Suk-Won, the chairman of Ssangyong, said that

¹¹⁶ The devaluation strategy faced a limitation in 1985 when the Plaza Accord incident caused the won to appreciate against the US dollar. The value of the won appreciated straight to 671.5 won per USD in 1989; however, Korea’s exports increased continually. One of the many explanations was the cost competitiveness of Korea compared to Japan. The labor cost in Korea was far lower than in Japan. The yen also appreciated and its rate of increase was even higher than the won. Because Japan and Korea shared the same export market, the appreciating yen increased the relative price competitiveness of South Korean goods. Another possible reason for this was the evolution of Korean capitalists to higher efficiency and productivity (which will be discussed later). Therefore, the exports of South Korea increased without interruption from \$37.56 billion to \$67.7 billion in 1989, when the Korean won depreciated again.

¹¹⁷ It is an exaggeration to say that Chun’s government entirely supported liberalization. It was just more liberalized. The government still maintained restrictions and discriminated supportive policies in designated industries (i.e., semiconductors and automobile) and specific activities (i.e., controlled excessive competition via forced mergers).

¹¹⁸ The Law for the Regulation of Monopoly and for Fair Trade (1981) was enacted for the first time after a series of abortive attempts in 1964, 1966, 1969, and 1971 (Chang, 1993: 140).

he “had to get rid of something... to satisfy the government officer” (p. 188). Concurrently, the Chaebols were forced to merge and liquidate to prevent excessive competition (**Table 4.6**).

Table 4.6: Examples of industrial reorganizations forced by the Chun government in the 1980s

Period	Products / sectors	Reorganizations
The first round (1980–83)	Power-generating equipment	Four companies were merged into the South Korea Heavy Industries and Construction Co. (KHIC). After that, the government nationalized the company.
	Automobiles	KIA, one of three producers in the passenger car industry, was forced to exit and specialize in trucks and buses. It was promised that it would return to the sector when demand increased.
	Naval diesel engines	Daewoo was forced to exit. Hyundai and Ssangyong were separately assigned to specialize in over-6,000 horse-power (hp) and under-6,000 hp, respectively.
	Heavy electrical machinery	There were three groups that managed to focus on specific segments. First, Ssangyong and Kolon were merged into Hyosung, which produced only sophisticated and expensive products. Second, a subsidiary of Hyundai was allowed to supply only its own sister companies. Finally, four other small-scale companies focused on less sophisticated and relatively cheap products.
	Electronic switching systems	Each of four producers (Samsung, Gold Star, OPC, and Daewoo) were also asked to specialize in different products.
The second round (1984–8)	Fertilizers	Three producers were liquidated.
	Shipping	63 shipping companies were merged into 17.
	Overseas construction	From 1986 to 1988, 82 inefficient companies were forced to merge and liquidate. Of these firms, 23 operated in the overseas construction sector.

Source: Summarized from Chang (2006: 116)

Chun-Roh-Kim's Science and Technology Policy

The aforementioned policies helped South Korea to regenerate and stabilize its economy in the medium term. However, to cope with higher labor costs, which lessened South Korea's competitiveness compared to Southeast Asian nations (i.e., Thailand and Malaysia), South Korean policy-makers needed to elaborate a long-term policy. "The first senior presidential secretary for economic affairs, Kim Jae-Ik, was confident that increased technological capacity would be critical to the second take-off of national economic development, a view echoed by his successors" (Hahm and Plein, 1995: 62). However, this was a very difficult task for South Korea in the 1980s because Japanese and US firms, which operated at the technological frontier, were reluctant to transfer core technologies to South Korean firms.

Chun's government then elaborated various policies with the aim of increasing technological capability and developing indigenous technologies. First, the government reorganized and utilized government-supported research institutions (GSRIs).¹¹⁹ When Chun seized power, there were 18 GSRI, which were managed by incoherent ministries. To create a coherent plan for technological development, Chun's administration transferred all of these GSRI to the Ministry of Science and Technology (MOST), merged overlapping institutions, and reduced numbers from eighteen to six (ibid.).¹²⁰

The government then progressively injected resources into these GSRI. For example, two prominent GSRI, usually cited as a successful case of technological upgrading, were the Korea Institute of Science and Technology (KIST)¹²¹ and the Korea Advanced Institute of

¹¹⁹ Other scholars called these institutions public-funded research institutions (PRIs).

¹²⁰ Chun appointed his two close friends as the ministers of MOST. "The glue that held together this arrangement was based, not on institutionalized changes, but on personal relationships. Technology policies were made by only a few people in MOST and the Blue house" (Hahm and Plein, 1995: 63). Indeed, this statement was true and the personal-based adjustment was not problematic per se. Many changes came from personal and ad hoc shifting before it led to institutional drifts or even replacements.

¹²¹ KIST was established in 1966 and fully operated in 1969. KAIST was founded in 1971 and played important roles in training young and capable scientists. It is worth noting that these two R&D-promoting institutions were

Science and Technology (KAIST). Budgets allocated for KIST increased from 3.2 billion won in 1975 to around 11.2 and 46.5 billion won in 1985 and 1995, respectively (Jung and Mah, 2013: 169). This trend showed that, instead of depending on technological transfers from abroad, South Korea turned to investing more in indigenous technological capability in the 1980s via GSRIIs.

Second, the government also directly invested, subsidized, and supported the private sector engaging in R&D activities. The first example was the National R&D Project (NRP), implemented by MOST. In 1982 it created 66 initial projects, which increased steadily to 370 in 1987. During the same period, participating companies increased from 86 to 250 firms (Kim Linsu, 1993). The government also subsidized corporate R&D via other channels (i.e., IBTDP),¹²² gave direct investment through venture capital, and provided preferential financing (i.e., cheap interest rate loans) (**Table 4.7**).

Table 4.7: Public source of funding for corporate R&D, 1982–1987, billion won

Types of funds	1982	1983	1984	1985	1986	1987
<i>Direct R&D subsidy</i>						
NRP	5.1	7.1	5.1	8.1	12.1	18.5
IBTDP						10
Inventor's prototype development	0.05	0.07	0.1	0.1	0.11	0.12
<i>Direct investment through venture capital firms</i>						
	0.2	2.3	3.1	4.4	6	12.2
<i>Preferential financing</i>						
Venture capital firms	22.1	49.9	60.1	82.7	90.5	100

created in the late-1960s and early 1970s when the labor movements and increasing wages had attracted the attention of the government.

¹²² The Industrial Base Technology Development Project (IBTDP), managed by the Ministry of Trade and Industry (MTI). NRP focused on new technology areas and IBTDP focused on existing technologies.

Types of funds	1982	1983	1984	1985	1986	1987
State-controlled banks	52.1	87.9	92	88	135.2	173
National investment funds		0.9	3.3	0.4	19.3	52.5
Industrial development funds	9.5	6.4	9.1	13.9	19.5	30.7
Industrial technology improvement funds					31.6	265.4

Source: Modified from Kim Linsu (1993: 373)¹²³

Third, the government extended tax incentives to support: (1) human resources and equipment for technological development; (2) R&D-based SMEs; and (3) venture capital formation. For example, the government allowed income tax exemption on foreign engineers and researchers in 1980. Import duties related to R&D were reduced in 1982. Special tax benefits for R&D were granted to SMEs in 1985. Moreover, the government initiated a Reserve Fund for R&D and exemption from capital gains taxes for venture capital firms in the 1980s (Table 4.8). All of these schemes stimulated private firms to invest more in R&D.

Table 4.8: Tax incentive system for promotion of R&D-related activities, South Korea, 1970s-1980s

Period	Promotion of technology transfer	Promotion of R&D commercialization	Promotion of venture capital formation
1970s	Tax exemption or reduction on income from R&D activities (1975)	Tax exemption and social depreciation rate for assets of newly commercialized technology (1973); Income tax exemption on engineering consulting services (1975)	-

¹²³ The original table was quoted in 100 million won.

Period	Promotion of technology transfer	Promotion of R&D commercialization	Promotion of venture capital formation
1980s	Income tax exemption on foreign engineers and researchers (1980)	Special tax benefits for R&D based SMEs (1985)	Reserve fund system for investment losses of venture capital firms (1980); Exclusion of capital gains from taxable income for venture capital firms (1982)

Source: Modified from Jung and Mah (2013: 171-2)

After Roh Tae-Woo took office in 1988, he continued with Chun's policies. "To increase competitiveness, the president and his senior secretariats for economic affairs, Moon Heegap and later Kim Jongin, promoted increased specialization among big firms. His government sought to encourage the top thirty firms to choose three 'core' lines of activity to mitigate the increasing concentration of economic monopoly power and to increase investments in technological development" (Hahm and Plein, 1995: 64). Roh also injected more resources into the supportive mechanisms created by Chun. Public R&D expenditure then increased from 224.9 billion won in 1985 to 651 billion won in 1990 (Jung and Mah, 2013: 176).

Kim Yong-Sam, the first civilian president after 1961, reigned in the Blue House in 1993. Like Chun and Roh, he was concerned with South Korea's position in international competition. In his New Year's message of 1994, he noted that, "We cannot enhance the international competitiveness of the Korean economy without greater technological development" (Hahm and Plein, 1995: 65). During his term, Kim increased public R&D

expenditure from 651 billion won in 1990 to 1,780.9 billion won in 1995, and a technology cluster named “Daedeok Innopolis”¹²⁴ expanded rapidly during 1993–9 (Lee and Oh, 2016: 5).

In conclusion, between 1980 and 1990, labor disputes increased and substantially pulled wages up. The government could no longer oppress labor movements and wages, so it was forced to think about how to source a new competitiveness further than a low labor cost. While they had different ideas about politics, Chun Roh and Kim agreed on the long-term economic plan that South Korea needed to accelerate the indigenous technological capability. Various schemes were developed in the 1980s. Some existing infrastructure (i.e., science town) was also utilized more during this phase.

Industrial Upgrading Toward Technology-Intensive Production

In the late 1980s, South Korean firms encountered three critical conditions that stimulated them to readjust their business strategies. First, militant labor movements successfully established labor unions in many large conglomerates and strongly bargained for better working conditions (i.e., wages and welfare). This triggered a death-drive consciousness among leading conglomerates upgrading their productions in HCIs and also diversifying into higher-tech industries (Chang, 2009: 124; Kwon and O’Donnell, 2001: 152).¹²⁵

¹²⁴ The Daedeok Innopolis, or science town, was initiated in the mid-1970s and the Park government prepared the foundations for the cluster. In the 1980s, corporate R&D centers gradually moved in. In the 1990s, universities (i.e., CNU, KAIST, and IOU), research institutions (i.e., ETRI, KSSR, and KCR), and private firms actively engaged in R&D activities in the cluster. The Daedeok transformed into a more sophisticated cluster during 2000–5 by connecting with other regional industrial complexes and business parks (Lee and Oh, 2016: 5).

¹²⁵ Chang (2009: 124) explained that, “individual capitals, recognising that it was no longer possible to overcome the slowdown only at the expense of the working class, began to accelerate the introduction of new means of production, which could change the labor-intensive character of the industries to a more capital-intensive one.” He added, “to do so, however, Korea needed to increase the import of capital goods for both existing major industries and newly emerging hi-tech industries.” Similarly, Kwon and O’Donnell (2001: 152) emphasized that the main trigger that pushed Hyundai to readjust its business strategy was the militant and independent labor unions that actively mobilized in the 1980s.

Second, the state also implemented a stabilization package that rapidly increased capital costs. For instance, “the prime interest rate in Korea was normally [between] 10 and 11.5 percent from 1982 to December 1988. In reality, only a handful of companies could borrow at these rates, since banks customarily tacked on compensating balance requirements and charges that raised the effective interest rates to 13–18 percent. At a time when prices were rising less than 5 percent annually, this resulted in some of the highest real interest rate costs in the world” (Clifford, 1998: 248).

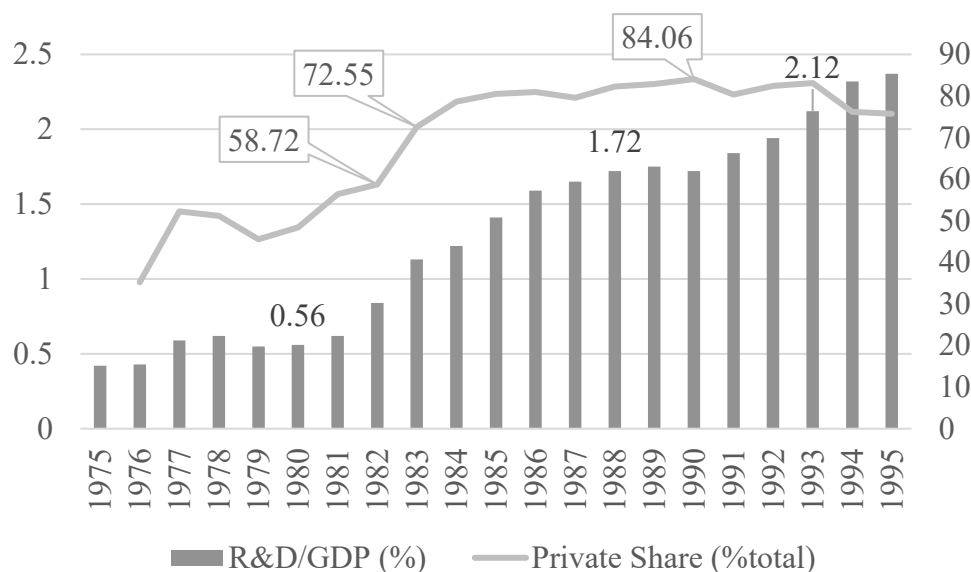
At the same time, the state also implemented new supportive measures promoting R&D, as discussed in the previous section. This increasing cost of production from labor and capital, as well as higher incentives for R&D, stimulated South Korean firms to participate more in creating innovations and indigenous technologies. Hyundai, for example, “responded to these increases in its cost structure by shifting its growth strategy towards technologically intensive businesses” (Kwon and O’Donnell, 2001: 152). This response was not limited to Hyundai but it was a main route of business adjustment in the 1980s, especially for Chaebols.¹²⁶ The next section will illustrate the national- and sectoral-level transformation, respectively.

At national level, we can see the obvious positive trend of R&D in the 1980s. For example, in **Figure 4.3**, R&D spending per GDP was maintained at around 0.42–0.56 percent during the period of HCI industrialization (1975–80). The ratio increased substantially from 0.62 percent in 1981 to 1.72 percent in 1990 and 2.12 percent in 1993, when South Korea reached the status of a high-income country. The private share of R&D spending also jumped

¹²⁶ The government provided a legal framework and fiscal support for R&D in many sectors from the late 1960s, for example, machinery (1967), shipbuilding (1967), electronics (1969), petrochemicals (1970), and iron and steel (1970) (Shin and Chang, 2003); however, these schemes did not significantly increase R&D spending in the private sector. The situation changed when capitalists faced the above three conditions mutually constructed by new policies and militant organized workers.

from 58.72 percent in 1982 to 72.55 percent in 1983, incrementally increasing to its peak at 84.06 percent in 1990.¹²⁷

Figure 4.3: Roles of R&D and the private sector in the economy, South Korea, 1975–1995



Source: Analyzed from the data of Lee (2009: 10)

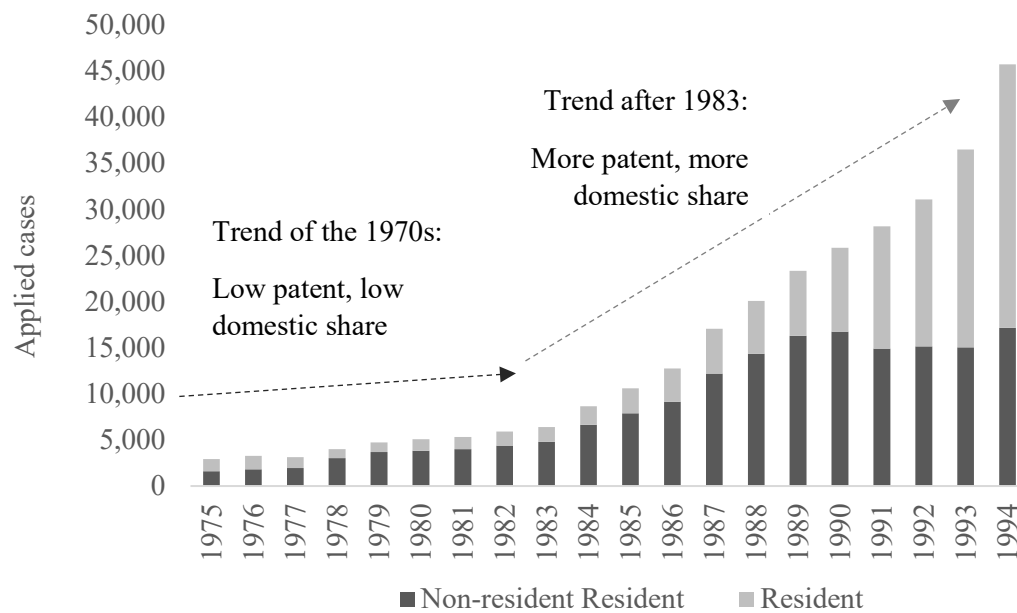
While R&D spending and its private share reflected how much South Korean firms invested in creating their own indigenous technologies, the applied patent initiated by South Koreans reflected the intermediate outcome.¹²⁸ In **Figure 4.4**, the number of resident patents increased from 1,599 cases a year in 1983 to 2,703 cases in 1985, and this number increased with a high acceleration rate to surpass foreign patents in 1993. Furthermore, a proportion of public and private shares in patent applications inconsistently went up and down between the 1970s and mid-1980s. Afterwards, the private share jumped from 19.3 percent in 1983 to 39.6

¹²⁷ Chung (2010: 340) also reached a similar conclusion, that is, in the 1980s and 1990s, Korean firms paid less for royalty payments and invested more in R&D.

¹²⁸ The applied patent needs to be commercialized before it generates higher value-added products, processes, and incomes. Therefore, at the most, the patent is the intermediate outcome of R&D efforts.

percent in 1984, and it rose without interruption to reach its peak at 93.4 percent in 1995 (Lee, 2009: 10).

Figure 4.4: Patent applications classified by types of applicant, South Korea, 1975–1994



Source: Analyzed from the data of Lee (2009: 10)

These patents accumulated and were concentrated in high-tech industries and HCIs. As stated in **Table 4.9**, the top five industries that held the highest numbers of patents in 2013 were electronic-related products, machinery, electrical equipment, medical instruments, and information and communication. These were developed in the 1980s when both the state and businesses adjusted themselves in response to the higher militancy of labor and increasing wages. The Chaebols during this period had already accumulated enough surplus to implement aggressive strategies for technological improvement (Wong, 1999).

Table 4.9: Top ten highest patent holders and R&D-related indicators classified by industry, 2013

Industries	R&D (billion won)	R-FTE¹²⁹ (people)	Domestic market size (billion won)	Number of patents (patents)
<u>Electronic components, computers, radio, television, and communication equipment</u>	<u>23,415</u>	<u>89,824</u>	<u>163,428</u>	<u>42,863</u>
Other machinery and equipment	2,665	18,307	113,677	25,974
Electrical equipment	1,033	9,002	74,999	20,337
Medical, precision, and optical instruments, watches, and clocks	823	7,783	33,996	18,758
Information and communication	1,953	26,127	117,372	14,953
Chemicals and chemical products except pharmaceuticals and medical chemicals	2,657	14,687	144,231	12,789
Pharmaceuticals and medical chemicals	1,083	5,750	18,461	9,544
Motor vehicles, trailers, and semi-trailers	5,276	26,142	104,300	7,399
Non-metallic mineral products	317	1,634	46,830	6,011
Construction	960	6,208	190,336	5,464

Source: Lee et al. (2016: 9)

When we explored in-depth details of the catch-up strategy, two products stood out, namely, semiconductors¹³⁰ and digital TV. In the semiconductor industry, the critical example was D-RAM, of which South Korea did not produce a single unit before 1984. When Samsung, one of the leading firms in the electronic industry, declared its willingness to enter the D-RAM market in the early 1980s, the government suggested that Samsung start from a low-tech 1 Kbit

¹²⁹ Full-time equivalent researchers (R-FTE)

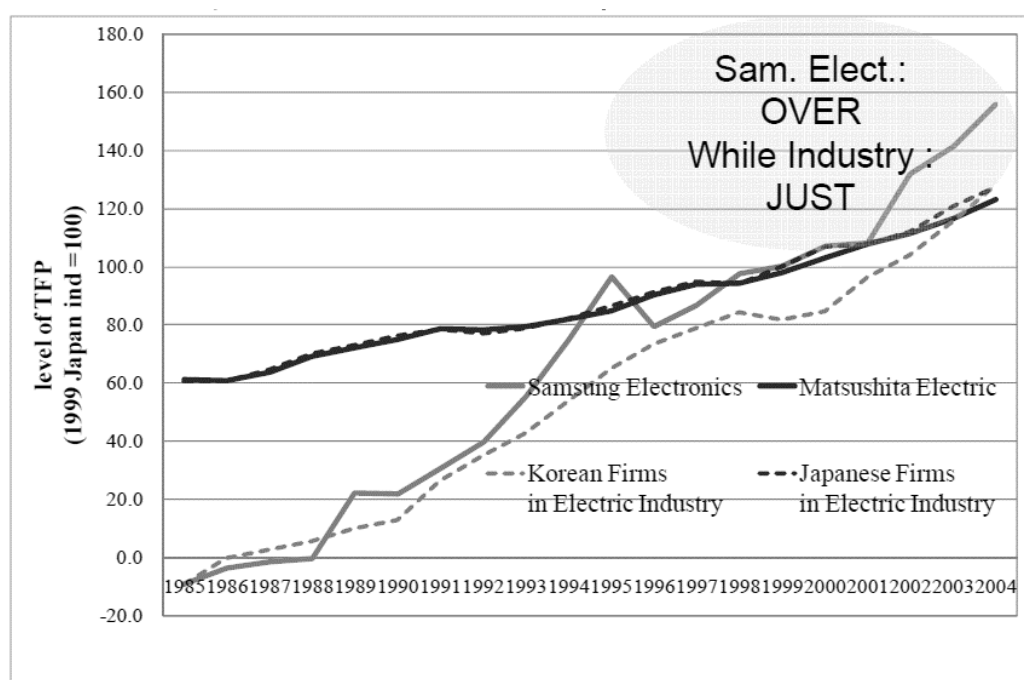
¹³⁰ What is the semiconductor that is famously referred to when scholars talk about the successful development of Taiwan and Korea? To put it simply, the semiconductor is a material that can help to both conduct and insulate electricity, depending on how it is modified. A basic supply chain of the industry begins with designing an integrated circuit (IC) and dynamic random-access memory (D-RAM) system,* fabricating the IC on a silicon wafer, testing, and assembling or applying the fabricated wafer to other electronic products. *The D-RAM system is a semiconductor memory that stores data within integrated circuits (so-called chips) in electronic products.

D-RAM. Instead of following the state's advice, Samsung entered with a 16 Kbit D-RAM and quickly tried to jump to a 64 Kbit D-RAM. This decision was radical and required intense investment in R&D to catch the forerunner in the US market.

Samsung accelerated its technology by taking over Microelectronic Technology, a small US-based venture company. In the mid-1980s, Samsung began to create its circuit design and produced a 256 Kbit D-RAM. While some foreign companies tried to sell their technology, Samsung rejected and confidently moved forward through its own efforts, even establishing an R&D center in Silicon Valley to lure South Korean experts in the USA to work for the company. This radical strategy was supported by the depreciated US dollar between 1985 and 1989 because of the Plaza Accord incident. Thus, the won appreciated and had high purchasing power to acquire US companies.

Remarkably, Samsung exponentially exported and increased its global market share from zero in 1983 to around 30 percent in 1995 (Lee and Lim, 2001: 466, 470–2). According to **Figure 4.5**, Samsung had been catching up with Japanese firms since the early 1990s, and other South Korean firms followed the company in the early 2000s. The increase in the technological capability of Samsung (as well as other conglomerates such as Hyundai and LG) induced the government to implement various forms of support. The Electronics and Telecommunications Research Institutes (ETRI), for instance, jumped in to support R&D in various electronics products.

Figure 4.5: Total factor productivity of South Korean and Japanese firms in the electronic industry, 1985–2004



Source: Reprinted from Lee (accessed January 23, 2020)

Another interesting case was digital TV.¹³¹ In 1989 South Korean firms identified high-definition television (HD TV) as the next-generation hot consumer product. Therefore, the government assigned 3 ministries (Ministry of Commerce, Industry and Energy; Ministry of Information and Communication; and Ministry of Science and Technology), 17 institutions (e.g., KETI¹³² and KITECH), and selected private firms (e.g., Samsung, LG, Daewoo, and Hyundai) to start a consortium to research and develop a prototype for the product to be developed. Between 1990 and 1994, the consortium invested 100 billion won in its five-year plan (Lee et al., 2005: 49).

¹³¹ “Digital TV means transmitting everything, including video, audio, and data, via digital transmission method after digitally processing them. Digital processing refers to the conversion of analog signals into digital signals composed of zero and one” (Lee et al., 2005: 45).

¹³² Korea Electronics Technology Institute (KETI) is a spin-off institution from the Korea Institute of Industrial Technology (KITECH) (Lee et al., 2005: 49).

Instead of following the Japanese path of analogue HD TV, led by NHK since the 1980s, the South Korean conglomerates aimed for digital TV by collaborating with other forerunners in the global market, such as GI and Zenith (later, LG purchased all of Zenith's shares in 2000). Samsung and LG successfully produced the prototype in 1993, initially producing the final product for export in 1998 (pp. 53–4). The number of digital-TV-related cumulative patents owned by Samsung and LG increased from just 1 in 1991 to 127 in 2002 (p. 51). If we consider all digital TV patents held by all South Korean firms, it was 151 in 2002, which increased 2.6 times compared to 1991.¹³³

If the advancement of D-RAM was called “path-skipping,” reflecting the rapid catch-up of South Korean firms in a specific industry, the case of digital TV was called “path-creation” (Lee, 2013). South Koreans did not just quickly reach the technological frontier, they also created a “new” kind of product technology (switching from analogue to digital HD TV). Putting it into VOC's perspective, this case reflected radical innovation technology rather than incremental technology. This is not just a special case of Samsung or any Chaebol in the specific industries, it also represented the strategy of South Korean conglomerates after the mid-1980s.¹³⁴

4.3 The Evolution of Labor Institutions from the 1960s to the 2000s

The labor movements not only triggered the state and business to adjust their strategies toward high-tech production but also transformed labor-related institutions in society. We have already seen how South Korean labor movements chose radical approaches to voice their grievances

¹³³ This was outperformed because the increase rate of patents in all sectors was only 1.7 times during the same period (Lee et al., 2005: 46).

¹³⁴ The existing heavy industries were also upgraded. For example, in the shipbuilding industry it was represented by HHI applied labor-saving technologies (i.e., automation and computerization of the production processes).

and bargain with capitalists. Hence, capitalists tended to respond by imposing labor-saving methods. Consequently, the trajectory of South Korean labor institutions moved toward LMEs (the simulated LMEs). To elaborate this argument, this section will examine the evolution of labor institutions in four domains, namely, the wage regime, education and the training system, welfare, and labor regulations. Together, it will show how these domains complemented one another.

Wage Regime:¹³⁵ Toward High-paid Performance-based Payment

Before the 1960s, South Korean firms did not have clear and explicit guidelines for wage payments. Under this informal wage practice, the owner tried to repress wages as much as they could. Due to the rapid expansion of economic growth and activities in the 1960s, many small family businesses were transformed into multi-divisional industrial conglomerates, which demanded more systemic labor management. Therefore, the wage system “became more formalized from the mid-1960s through the development of clear criteria for wages and bonus payments” (Kwon and O’Donnell, 2001: 53–4).¹³⁶

The requisite formalization, however, did not lead to a more generous system. During the first half of the 1970s, for instance, the conglomerates imposed a “formal system of militaristic labor controls,” which adopted the model from the military camp. Retired army

¹³⁵ While the previous sections discussed the labor disputes and wage rates, this section concentrated on *institutions related to wage determination*. These two are connected, but they are not the same thing.

¹³⁶ In peripheral areas, labor strikes occurred in some industries, namely, shipbuilding (KESC) and overseas construction (HECC) and motivated an initial reform of the wage system. For example, in 1968 Korean workers of Hyundai in Thailand perceived that there was injustice and an inconsistent wage system. They earned less than people working in Vietnam doing similar tasks. Also, among themselves, “while skilled workers were paid an hourly wage, managerial employees were paid a monthly salary” (Kwon and O’Donnell, 2001: 55). Hence, the workers declared strikes and requested that the company replace “its low wage policy of 1968 with wage regulations comparable with overseas workplaces” (ibid.). It was called “the Overseas Wage Regulations,” uniformed, and standardized for all operating fields of the Hyundai Engineering and Construction Corporation (HECC).

officers were hired to supervise workers and force them to work under hazardous conditions, for long hours, and with poor wages (p. 84). However, these repressive approaches dialectically pushed workers to react by employing more militant responses. These militaristic labor controls and repressive wage rates led to various strikes in the 1970s.

Throughout the 1980s, it was obvious that the trade unions could no longer be disciplined, and their movements continually gained momentum, reaching a peak around 1987–8, which led to many critical changes,¹³⁷ For example, first, many conglomerates created several ways of performance-based evaluation that determined workers' bonuses and incentives for learning. Second, the unilateral wage determination dominated by employers came to an end. Finally, the government enacted the Minimum Wage Act.¹³⁸ These adjustments will be elaborated in the following parts.

The Performance-Based Payment

The higher cost of disputes during the 1970s-80s finally led the companies to readjust their wage policies toward a performance-based system (Chang, 2009: 125).

For example, after the Jubail Industrial Harbour Project strike in 1977, Hyundai adjusted its wage policies.¹³⁹ Supervisors had to evaluate production workers' productivity used for calculating the additional payments. "Workers in the first class were awarded 100 to 110 per cent of the basic wage, while second-class workers were paid between 70 and 80 per

¹³⁷ In macro-level adjustment, in the 1970s, there was a wage guideline. It was not the guideline for the minimum wage, but a de facto "ceiling wage." A company that allowed wages to increase more than the guidelines risked losing government subsidies (Liu, 2015: 78). This was changed during the critical juncture of Korea around 1987, when democratic and labor movements peaked. The government enacted the Minimum Wage Act in 1986 and utilized it to fully implement the Minimum Wage System in 1988.

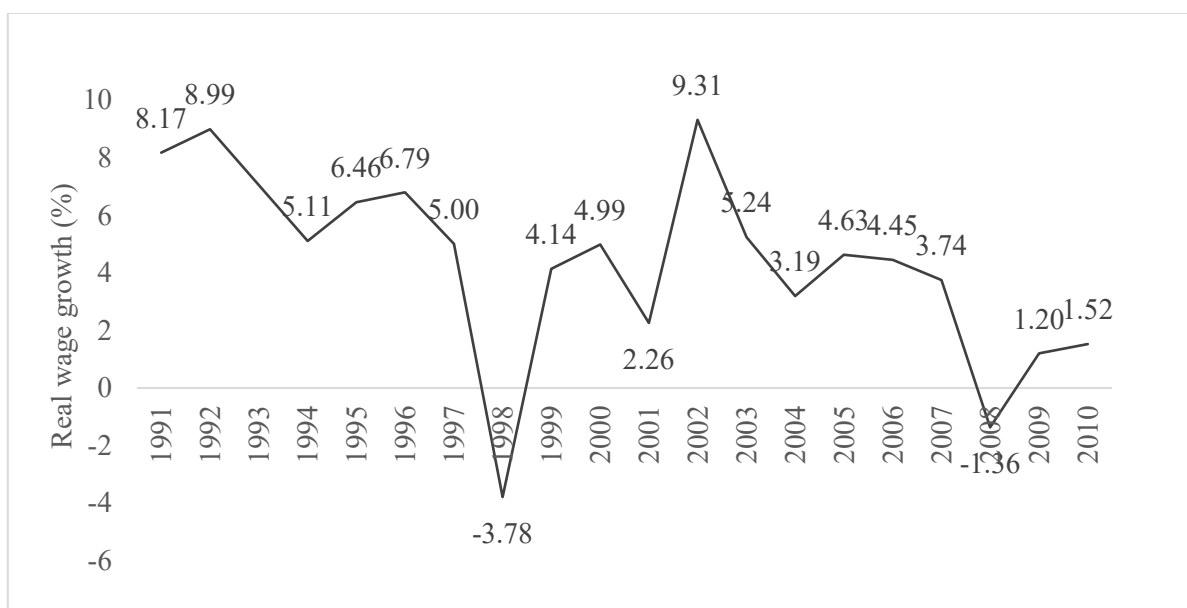
¹³⁸ There were several other non-wage strategies. For example, large companies reformed human resource management, installed labor-saving technologies (i.e., automations and computerization), and extended hierarchical structures and departmentalization of the company. These will be discussed in the following parts.

¹³⁹ In the Korean language, the wage payment system had transformed "from *yeon-kong-seo-yeol* (length of service) towards *yeon-bong-yu* (work performance)" (Rowley et al., 2004: 925).

cent of this wage. Nevertheless, as a precaution against further industrial militancy by construction workers against their essentially low wages and poor working conditions, most were assigned to the first class, which resulted in a sudden rise in HECC's labour costs" (p. 90).

This new wage system was increasingly adopted by businesses. The adoption ratio escalated from 23 percent of total firms in 1997 to 52.5 percent in 2007 (Song, 2012: 482). It is worth noting again that the performance-based system did not suppress wages. The function of performance-based payment mainly made sure that the wage increase was linked closely to labor productivity. As illustrated in **Figure 4.6**, in the 1990s, except during the financial crisis in 1997, real wage growth was higher than 4 percent per year. It quickly reached a peak at 9.1 percent in 2002. After that, the rate decreased and stayed at more than 3 percent until 2008, when the sub-prime loan crisis occurred.

Figure 4.6: Real wage growth of employees, South Korea, 1991–2010



Source: Calculated by author based on (1) nominal earnings growth data from MOEL of Republic of Korea (accessed May 2, 2021) and (2) inflation rates from the World Bank (accessed April 16, 2021)

The End of Unilateral Wage Determination Dominated by Employers

After 1987, labor disputes spread radically, with more than half of all incidents related to wage increases and wage delinquency (Suh, 2009: 60). As seen in **Table 4.10**, from 1988 to 1991 even the state-sponsored Federation of Korean Trade Unions (FKTU) demanded very high wage growth ranging between 17.3 and 29.3 percent per year. The capitalists' association, named the Korea Employer's Federation (KEF), bargained against labor's demands. The KEF stood for wage increases ranging from 7 to, at most, 12.9 percent per year. The huge gap between the preferred wage rates of capitalists and labor led to combative relations.

Table 4.10: Wage increase guidelines, concluded and actual wage increase rates, 1988-1995, percent

Year	Guidelines proposed by				Concluded wage increase	Nominal wage increase
	Government	Capital (KEF)	Labor			
			FKTU	Independent national unions ¹⁴⁰		
1988		7.5-8.8	29.3		13.5	15.5
1989		8.9-12.9	26.8		17.5	21.1
1990		7	17.3-20.5		9	18.8
1991		7	17.5	22.2	10.5	17.5
1992	5	4.7-6.7	16.8	25.4	6.5	15.2
1993	4.7-8.9	4.5	12.5	18	5.2	12.2
1994	5.0-8.7	3.2-6.1	6.6-10.8	16.4	7.2	12.7
1995	5.6-8.6	4.4-6.4	12.4	14.8	7.7	11.7
Average	6.44	6.66	17.86	19.36	9.64	15.59

Source: Modified from Suh (2009: 118)

¹⁴⁰ The National Congress of Trade Unions (NCTU) and later the Korea Confederation of Trade Union (KCTU)

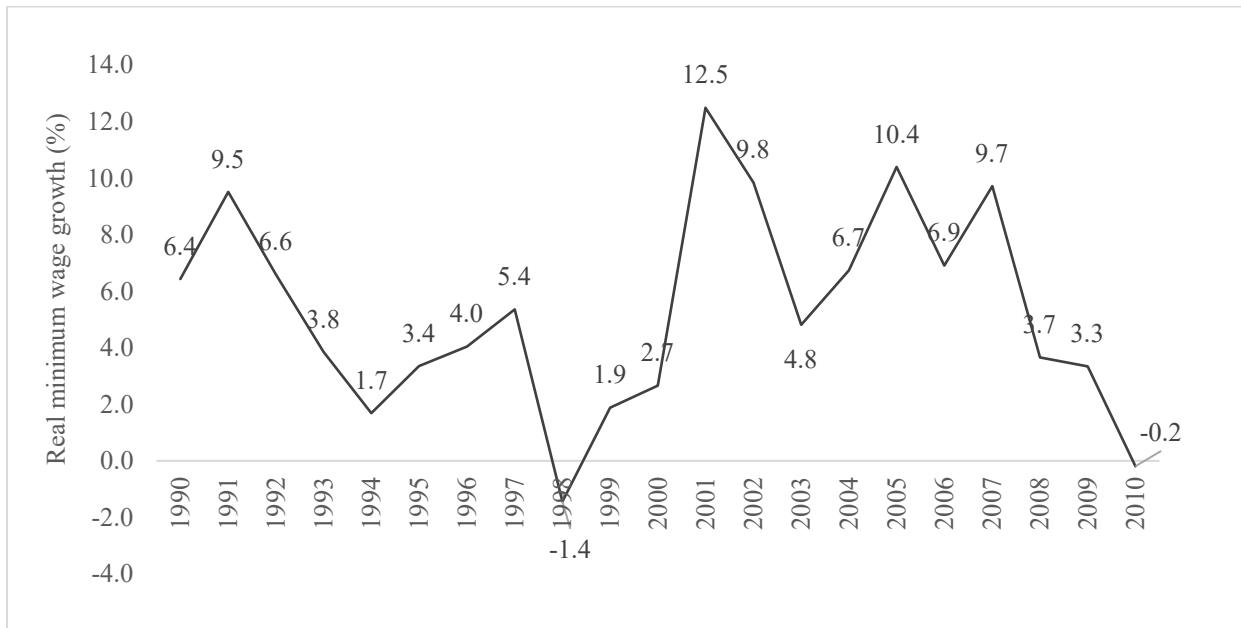
In 1992 the state stepped in to mediate these two contentious forces by announcing the new wage guidelines. However, it took the side of capitalists instead of labor. The guideline wage was just slightly higher than the capitalists' proposal. For example, in 1993, when labor required wage growth of 12.5–18 percent and the KEF negotiated 4.5 percent, the government proposed 4.7–8.9 percent. Although the suggested wage resulted from a tripartite committee controlled at “single-digit” interval, the nominal wage growth generally went beyond 10 percent per year throughout the first half of the 1990s (Suh, 2009: 108).¹⁴¹

The Minimum Wage Act

Another important role of the government in adjusting labor intuition is *the Minimum Wage Act*, which was enacted in 1986 and extensively expanded thereafter. Looking at **Figure 4.7**, real minimum wage growth was generally high. It accounted for more than 6 percent per year during the first three years of the decade. Moreover, between the financial crisis (1997) and the sub-prime crisis (2008–10), minimum wage growth was very high, ranging from 4.8 to 12.5 percent per year. These adjustments led to the conclusion that the strikes not only increased wage rates but also continually shaped institutions related to wage determination.

¹⁴¹ This was because many independent unions (at both national and enterprise level) applied the guidelines and suggested wages that were just a “basic salary” and did not include the additional allowances and bonuses. When these additional benefits were added to the total wages, the wage growth rates went beyond 10 percent per year (Chang, 2009: 128). Moreover, from 1987 to 2007, the wages of the non-agricultural workforce increased 6.7 times (Lee, 2011: 104).

Figure 4.7: Real minimum wage growth, South Korea, 1990-2010



Source: Calculated by author, based on: (1) nominal minimum wage data from the minimum wage commission (accessed April 16, 2021); and (2) inflation rates from the World Bank (accessed April 16, 2021)

Education and Training System: Towards University-based Meritocracy

The education and training system were developed together with the economic structure. In the 1960s, the government aimed mostly to expand primary education and increase the number of literate workers. For example, 81 percent of the education budget in 1961 was allocated to primary education (Kim, 2001: 31). Literate workers could then read manuals and learn to increase their productivity by practicing (under repressive conditions). However, this was not enough to support economic expansion when the economy upgraded to HCIs and a technological-based economy in subsequent periods.

In the 1970s the government shifted resources to support secondary and tertiary education. The number of students in higher education increased from just 146,414 people in

1970 to 1,040,166 people in 1990 (Chae and Hong, 2009: 349). The conglomerates also adjusted their recruitment policies and employed more university-trained workers to manage the newly installed and sophisticated machines. They paid more for university-degree workers. For instance, during this period, “in HMC,¹⁴² new employees with a high school qualification received merely 60 to 70 per cent of the basic wage of university graduates in the managerial hierarchy” (Kwon and O’Donnell, 2001: 92).

Indeed, the government tried to implement supportive policies for vocational training; however, it failed because “(a) the enrollment split between the general/academic and vocational/technical tracks remained largely unchanged because of public preference for general education that leads to colleges and universities; and, (b) firms in the manufacturing industry began to adopt labor saving technologies such as robotics and factory automation” (Kim, 2001: 33). From the 1980s, the university degree became a substantial factor for social mobility that Cho and Yoon (2012) called “university-based meritocracy.”

Large companies classified managerial positions through educational backgrounds, and a university degree was used as a qualification for white-collar workers, who were usually excluded from organized labor movements. “One survey found that more than half of manufacturing blue-collar trade unions had bylaws explicitly denying white-collar workers union membership” (Suh, 2009: 21). In 1989, for example, Chung Ju-Yung, the owner of the Hyundai group, dissolved all managerial-level workers’ unions in the group. He said:

“It is understandable that production workers have organised a union
for their own interests because they are doing the real labour

¹⁴² In the Hyundai Heavy Industry (HHI), the wage gap was even higher than the Hyundai Motor Corporation (HMC). “Fifth year technical workers received less than first year managerial employees” (Kwon and O’Donnell, 2001: 92).

[production work]. But it is odd for a union to be organised by managerial employees... they don't know how hard it is to work in the production line because they've just graduated from university, joined the white collar workforce and work from desks." (*Monthly Mal* January 1991: 174-5 cited in Kwon and O'Donnell, 2001: 123)

In exchange, the most prestigious performance-based rewards were preserved for the university-degree workforce and researchers. For example, "Samsung's profit sharing was limited to 'researchers', although from 2000 this was applied to all university graduates" (Rowley et. al., 2004: 925). The government support and wage structures of private firms encouraged university-trained workers and discouraged vocationally trained ones; therefore, ultimately, they shaped the preference of a family's investment in education toward universities.

Welfare System: Toward More Flexibility (Less Security) at Firm Level

In the 1960s the Park government ambitiously aimed to reduce poverty rates and increase welfare benefits for public officers, as well as industrial workers. "Many of them were the statutory consolidation of administrative orders and ordinances" (Lee, 1999: 27). The Workmen's Compensation Insurance Scheme (1963), for instance, bound employers to compensate workers for industrial accidents. In the same year, the Medical Insurance Act came into force. The government also created the pension scheme; however, it was only piloted to government employees in 1962 and expanded to military personnel in 1963.¹⁴³

¹⁴³ "Government employees and military personnel were the first two occupational groups to receive public pensions in Korea. The pension was not only a means to protect the lives of retirees, but also a means to upgrade their status vis-à-vis other occupational groups, thereby securing their continuous loyalty to the new regime" (Lee, 1999: 27).

In the 1970s labor disputes increased substantially, leading to several revisions of welfare-related laws. For example, in 1970 and 1974, the Workmen's Compensation Insurance was revised. The coverage was broadened from "workplaces with 500 regular employees or more" to 200 employees and 16 employees, respectively (ibid.). In 1973 the government expanded the pension's coverage beyond public officers by enacting the National Welfare Pension Act. During the same period, the government also revised the Medical Insurance Act (p. 28). While we can observe the clear trend of extended coverage of welfare benefits, these benefits were limited mostly to regular workers in the formal sector.

In 1983–4, as with the revision of Workmen's Compensation Insurance in 1974, President Chun Doo-Hwan reviewed the Medical Insurance and expanded its coverage to workplaces with 16 regular employees or more. The plan was to execute the draft for incorporating informal workers into the insurance's compulsory coverage (p. 29). However, Chun was forced to step down in 1987 and these programs were carried forward by the successive government of Roh Tae-Woo (1988–92). After that, labor disputes and social unrest increased sharply and Roh "endeavored to stabilize confrontational industrial relations through labor market reforms" (Song, 2012: 424).¹⁴⁴

In the 1990s the Kim Young-Sam administration (1993–7) emphasized that South Korea needed to readjust to comply with globalization (*Segyehwa*). "In May 1995, the National Welfare Planning Board was formed by the Segyewha Committee" (Lee, 1999: 31). The board proposed many principles to balance globalization and the domestic social welfare system. Together, the government promulgated the Employment Insurance Act in 1993, putting it into

¹⁴⁴ The five master plans for workers' welfare were implemented in a transition period between the government of Roh and Kim Young-Sam. They were: (1) houses for workers; (2) self-reliant welfare project; (3) an in-plant labor welfare fund; (4) public facilities for enhancing workers' cultural and leisure activities; and (5) a training system for skill upgrading, such as an in-plant college system (Lee, 1999: 29–30).

effect in 1995 (ibid.).¹⁴⁵ The benefits of the insurance were designed to enhance not only the well-being of workers, but also the competitiveness of the economy as a whole.

Later, the Kim Dae-Jung administration (1998–2002) “initiated comprehensive labor market reforms to allow employers to lay off redundant core regular workers for managerial reasons (including mergers and acquisitions), in exchange for improvement of workers’ basic rights and the expansion of social welfare programs” (Song, 2012: 424).¹⁴⁶ Kim declared that his welfare program was “productive welfare” (Kwon, 2002: 27), because it provided more firm-level flexibility, which was relevant to the performance-based wage system. At the same time, the government stepped in to compensate by providing a better national security system.

At firm level, the situation was more complicated. Although the legal framework in the 1990s allowed employers to discard unwanted workers, independent trade unions promptly reacted to the lay-offs. For example, the labor union of the Hyundai Motor Corporation (HMC) forced management to sign an agreement promising not to lay off core regular workers.¹⁴⁷ “Observing the intense confrontations between businesses and labor at Hyundai Motors, most Chaebols decided to avoid implementing ‘costly’ lay-offs for corporate restructuring, even if labor market reforms authorized it” (Song, 2012: 424).

These Chaebols turned to employing “more non-regular workers and the subcontracting of production lines to SMEs in order to control labor costs” (p. 427). This strategy had two

¹⁴⁵ The Act created three important mechanisms. First, the Employment Stabilization Scheme aimed to prevent unemployment and improve employment conditions. Second, the Job Ability Development Scheme focused on the promotion of skills training, and (3) the Unemployment Insurance Scheme gave financial support to unemployed workers (Lee, 1999: 32).

¹⁴⁶ However, the Korea Confederation of Trade Union’s leaders were severely criticized “by their rank-and-file members for having accepted the layoff clause.” These members even urgently called for meetings and demanded general strikes against the deal. However, they were unable to achieve it (Koo, 2000: 246; Chang, 2009: 142).

¹⁴⁷ For details of the incident, see Chang (2009: 144–5). In brief, the HMC imposed voluntary retirement schemes and lay-offs for business restructuring purposes, leading to thousands of unemployed persons. The HMC’s labor union tried to compromise by accepting working-hour adjustments and lower wages in exchange for maintaining positions; however, Hyundai ignored the proposal. Approximately 10,000 workers and their families then engaged with the strike and occupied the factory. This incident finally ended with some compromises and agreements.

crucial consequences. First, these non-regular workers were less likely to access the welfare programs. As is evident in **Table 4.11**, less than 38 percent of all non-regular workers could access the employment insurance, national health insurance, and public pension programs. By contrast, more than 63 percent of regular workers could access these programs. Second, because the conglomerates hired more non-regular workers, it was more difficult for the South Korean conglomerates to make incremental improvements through close collaboration with shop-floor production.

Table 4.11: Coverage of welfare in South Korea, 2005, percent of total workers in each category

Welfare Programs	Regular workers	Non-regular workers
Employment insurance program	63.80%	34.50%
National health insurance	75.90%	37.70%
Public pension program	75.70%	36.60%

Source: modified from Song (2012: 429)

Labor Regulations: More Recognized Union Pluralism

Before the late 1980s, the labor laws created what South Korean labor organizations generally called “‘three vicious clauses’ that prohibited union pluralism, unions’ political activities, and the involvement of third parties in union affairs” (Lee, 2011: 107). All of the aforementioned labor movements led to several improvements in wages, working conditions, and welfare benefits, accomplished by organized and, mostly, outlawed labor strikes without legal support.

Even during the Great Workers' Struggle in 1987, 99.1 percent of all disputes were illegal (Chang, 2009: 119).

The first successful attempt to revise the labor laws occurred "in late 1987 in conjunction with the rewriting of the Korean constitution" (p. 106). Once the law was refined, workers enthusiastically founded autonomous unions in large companies.¹⁴⁸ In early 1990 organized workers collaborated with one another beyond the enterprise's boundary. They created two initial (and illegal) collaborations: first, there was the National Congress of Trade Unions (NCTU: *Jeonnohyeop*), whose members came largely from production workers in SMEs (Lee, 2011: 107); and, second, there was the Korean Congress of Independent Industrial Trade Union Federations (KCIIF), which aimed to create networks among white-collar workers (Suh, 2009: 4).¹⁴⁹

These newly formed labor blocs were oppressed by Roh's government.¹⁵⁰ In the mid-1990s, there was a transition period while political power was handed over to President-elect Kim young-Sam. In this democratic moment, the NTCU sought cooperation from Chaebol unions and white-collar unions. They mutually created a novel organization entitled the Korea Confederation Trade Union (KCTU) in 1995. "The KCTU included 862 labor unions and 420,000 union members at the time of its establishment" (Lee, 2011: 108). Indeed, the KCTU

¹⁴⁸ In 1987, 14 autonomous unions were founded in Hyundai's subsidiaries in Ulsan. Six years later, the coverage of these trade unions reached more than 70 percent of companies' workers. For instance, the unionization rates of the Hyundai Heavy Industry (HHI), the Hyundai Motor Company (HMC), and the Hyundai Construction Equipment (HCE) were 89, 80, and 80 percent, respectively (Kwon and O'Donnell, 2001: 119).

¹⁴⁹ In 1993 the KCIIF expanded coverage to many professions such as school teachers, university lecturers, financial workers, hospital employees, and journalists. It accounted for around 685 affiliate unions and 146,532 members (Suh, 2009: 5). However, the details of white-collar unions could not be covered in this thesis. Between the national and the enterprise level, there were regional labor organizations, for example, the Council of Unions in Masan and Changwon, established in 1987 (Chang, 2009: 126).

¹⁵⁰ "Beginning with violent interventions that smashed the major strikes of the militant unions, such as the Korean Locomotive Workers Council, the Seoul and Pusan Subway Trade Union, Kumho Tires, Daewoo Machinery and Electronics, Shinil Steel, Pusan Marinol Hospital, and Korean Telecom Trade Union (Chang, 2009: 129).

was still illegal under the existing labor law at the time; however, it received de facto recognition from the Kim government.

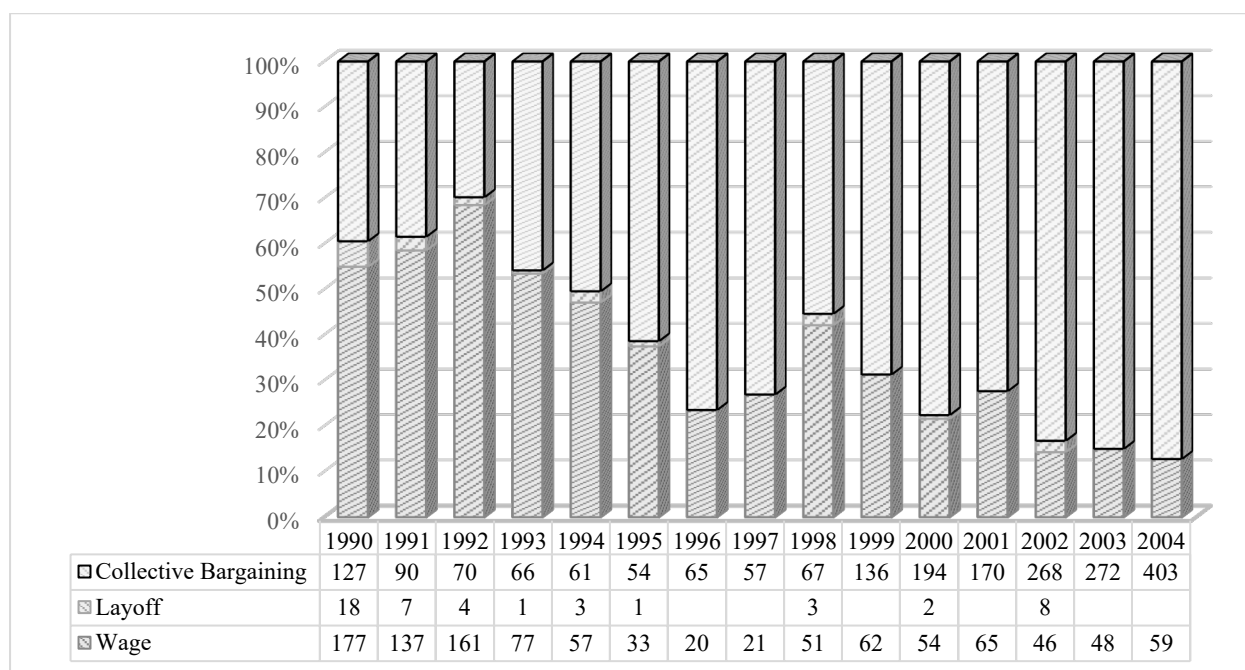
In 1996 Kim Young-Sam declared the “New Thought on Industrial Relations for Leaping into the First-Class Nation in the 21st Century” (Chang, 2009: 130) and appointed “the 30-person President Commission on Labor-Management Relations Reform,” which incorporated representatives of capitalists, unions, bureaucrats, and scholars, to draft the comprehensive labor market reformation (Koo, 2000: 237). However, the committee failed to reach a consensus. In December 1996 the government drafted and pushed the labor reform bill, which was perceived by labor organizations as the pro-capitalist act, into parliament. For example, it “accepted virtually all of business’ demands, but postponed legalization of the KCTU until 2000” (p. 239).¹⁵¹

The labor organizations successfully displaced the longstanding labor laws, resulting in the government accepting union pluralism in the 2000s. Between the 1990s and early 2000s, the causes of labor disputes gradually weighed more on job security and collective bargaining issues.¹⁵² As seen in **Figure 4.8**, for example, the disputes related to collective bargaining, which increased from 73 percent of total disputes (57 cases) in 1997 to 87.3 percent (403 cases) in 2004. In contrast, during the same period, wage issues, which had dominated the agenda of labor disputes since the 1960s, dropped from 27 percent (21 cases) to 12.8 percent (59 cases).

¹⁵¹ Not surprisingly, the bill was opposed militantly by labor organizations. In December 1996 the FKTU and the KCTU jointly declared strikes that mobilized around 517,000 workers against the bill. While the government hoped that the New Year holiday would calm the angry workers down, this was not the case. In January 1997 the number of workers involved increased to approximately three million (Koo, 2000: 239–40). These labor organizations fought until the government called the bill back and revised it.

¹⁵² “Wage issues include overdue wages and wage increases; collective bargaining category includes collective bargaining and other issues such as improving working conditions, massive layoffs, company mergers, and unfair change-of-job assignments” (Lee, 2011: 111).

Figure 4.8: Causes of labor disputes in South Korea, 1990-2004, Cases



Source: Data from Lee (2011: 111), analyzed by author

Institutional Complementarities and Their Effects

In the 2000s all four labor institutions were replaced by the new ones. They were: (1) the high-paid performance-based wage regime, (2) university-based meritocracy, (3) higher social security and enterprise-level flexibility, and (4) union pluralism. These institutions complemented one another, and their complementarities are presented in **Figure 4.9** (below):

- (1) **Wage regime vs. labor regulations:** The performance-based¹⁵³ wage regime emphasized a linkage between individual performances and wage rates. Therefore, it motivated workers to compete with one another and discouraged collectivism. After the late 1990s, “the Korean culture shifted toward

¹⁵³ Others also call it “competition-led” and “merit-based.” In this work, they are generally treated as having the same meaning.

individualism,¹⁵⁴ which encourages competition and allows more material incentives based on achievements” (Lee and McNulty, 2003: 49).

In a more specific way, it discouraged workers from participating in unions. Thus, the unionization rates of industrial workers declined continually from 21.5 percent in 1990 to 14.7 percent in 1996 (Koo, 2000: 231) and 11.6 percent in 2000 (Lansbury and Wailes, 2005: 326). Together, the “[remaining] union members, relatively satisfied with wage bargaining outcomes, lacked [the] incentive to raise social reform demands” (Suh, 2009: 134).

Less unionization and higher job insecurity in the late 1990s¹⁵⁵ motivated union leaders to focus more on collective bargaining than wage issues (**Figure 4.8**). Therefore, firms that still used a seniority-based wage system had more space to deal with wage restructuring toward a performance-based system. In the 2000s the number of firms that adopted the system increased substantially. So, we can see that the two institutions reinforced each other.

- (2) **Wage regime vs. education and training system:** the high-paid performance-based system obviously had two preferred effects on the education and training system. First, industrial workers had incentives to learn very fast and increased their productivity. Second, higher wages also created higher demand for education.

Furthermore, workers with a higher education generated higher family incomes. This increased their ability to pay for their children’s education. In this sense, it also had an intergenerational effect. At the same time, a higher level of

¹⁵⁴ Also see Rowley and Bae (2002).

¹⁵⁵ Certainly, the higher job insecurity was related to the 1997 financial crisis. However, in part, it was also connected to the flexible employment system popularized in the late 1990s.

education and skills also reinforced higher average wage rates. This is a virtuous cycle between high wage and education.

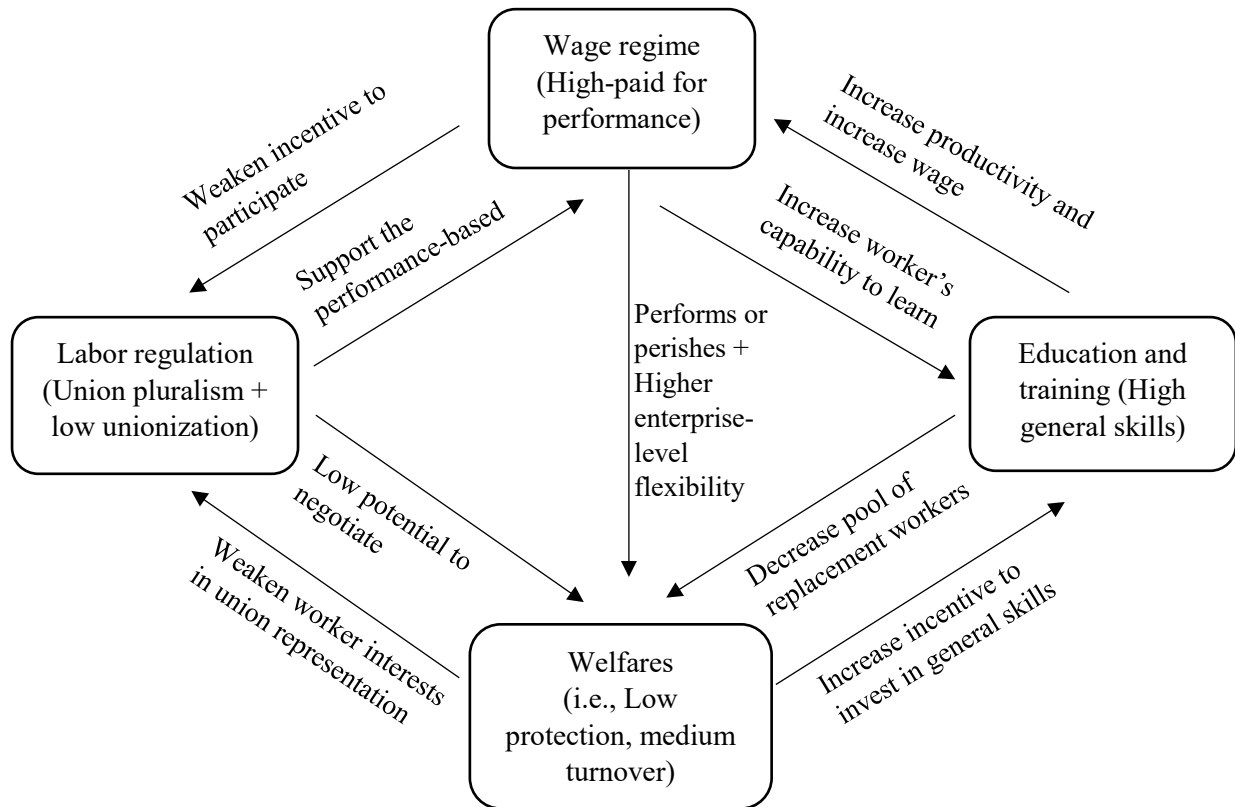
- (3) **Wage regime vs. welfare schemes:** Based on (1) and (2), we know that the wage system in the 1990s placed the emphasis on individual performance and education. The system stimulated students to compete against one another to reach prestigious universities (i.e., SKY).¹⁵⁶ Later, after they had graduated, as managerial workers they continued to compete against each other in workplaces. This characteristic matched the objective of labor market reformation in Kim Dae-Jung's era, that is, higher enterprise-level competition and flexibility. According to the OECD (2018), in 2015 South Korea's job tenure was low (5.8 years), comparable to the UK and Brazil. Together, its incidence of "job tenure of less than one year" was 38.8 percent, one of the highest studied in the report.
- (4) **Welfare schemes vs. the education and training system:** The flexible and low-protection labor market motivated students to get a "general education," which was required before entering the internal labor market of companies (Lauder et.al, 2008: 22). In addition, workers had to learn "general skills" to prepare for job switching if they were unemployed (Hall and Soskice, 2001). Simultaneously, a high level of education and skills decreased turnover rates (Cho et.al, 2010: 107).
- (5) **Welfare schemes vs. labor regulations:** In the context of the flexible labor market, it created not just low job tenure but also high outsourcing of production workers and temporary workers. Therefore, a large proportion of workers had

¹⁵⁶ SKY is an acronym of the three prestigious universities in Korea. They are: Seoul National University, Korea University, and Yonsei University.

low ability and few incentives to join enterprise-level unions. This led to lower unionization rates in the 2000s.

Consequently, the low unionization decreased the bargaining power of labor unions. In other words, unions could not easily use the official mechanisms to improve existing welfare benefits. Hence, organized labor needed to impose militant labor movements to realize its goals, which unintentionally reinforced the application of the outsourcing system and decreasing unionization.

Figure 4.9: The simulated LMEs and its complementarities



These complementarities, fabricated in the 2000s, provided durability for South Korean labor institutions. They shaped the long-term consequences of South Korean development. For example, because of the militancy of labor movements and contentious labor–management

relations, firms preferred to pursue labor-saving instead of labor-complementing measures. This meant that firms employed more capital, as well as labor-saving technologies and techniques (i.e., automation and outsourcing), to replace militant workers. Firms therefore had more incentives to employ more graduates and discouraged unionization. Furthermore, the university-based meritocracy, high level of outsourcing production, and general skills supported radical, rather than incremental, innovation,¹⁵⁷

¹⁵⁷ This was relevant to the findings of Wong (1999), Hall and Soskice (2001), and Lee (2013). In other words, South Korean firms usually invested huge amounts of capital in R&D and employed reverse product life-cycle strategies to catch up with short-cycle technologies.

A Summary of the Second Case: Taiwan

“Chapter 5 explains the relationship between the developmental state and developmental labor. The developmental state emerged after the KMT stepped on the Formosa’s seashore. The party reformed itself by considering the bitter lesson from Mainland China. It also recreated the productive state–business relation in the 1950s. During the next two decades, the state continually created conditions that supported industrialization, as well as the rise of developmental labor. In Chapter 6, it shows mechanisms of the transformation toward a high-technology economy. From the late 1970s to the early 1980s, developmental labor actively mobilized wages upwards. While wages increased slower than in South Korea, the pace was faster than in other emerging economies. As such, this triggered many changes in business practices and economic policies in the 1990s. In parallel, Taiwanese developmental labor employed a moderate strategy for bargaining (i.e., peaceful voices via the KMT’s apparatus); therefore, businesses and the state preferred labor-complementing adjustments. These transformational mechanisms continually simulated institutional evolution toward the networked labor market in the 1990s and 2000s.”

Chapter 5:

The Emergence of Developmental Labor in Taiwan

Like South Korea, the Taiwanese state played a critical role in the early phase of industrialization (the 1950s–1960s). It shaped the conditions that limited the choices of politico-economic actors in subsequent periods. In the 1970s there was an emergence of spontaneous labor movements, which gradually bargained for higher wages, better working conditions, and other benefits. The strategies that they chose for negotiation determined how the state and businesses adjusted themselves toward hi-tech industries since the 1980s. To illustrate this argument, this chapter will elaborate on the first part of the story, that is, how the state became a strong agency and conducted other parties to generate economic growth. It later explains how Taiwan's labor movements emerged in the 1970s.

5.1 Antecedent Conditions

Before 1949, Taiwan was insignificant and peripheral in terms of its economic size and international relations. However, the picture changed incrementally after the Kuomintang (KMT) was defeated by the Communist Party and retreated from Mainland China to the island. The KMT did many things to reform Taiwan, but the reform package did not materialize from nowhere. The KMT considered various conditions when it implemented policies. Some were inherited from Mainland China, while others were rooted in the indigenous area. This section elaborates on these antecedent conditions and utilize them to explain the KMT's policies in the following sections. There were three factors that shaped KMT's initial strategies in Taiwan:

Sun Yat-Sen's ideology, a lesson learnt from the defeat in Mainland China, and the colonial legacy of Japan.

Sun Yat-Sen's Ideology

Sun Yat-Sen was a prominent figure in modern Chinese history. In the 1890s he was a young revolutionary activist who proposed the idea of Chinese reformation to the Imperial Grand Secretary of Chili province to leverage “the people's livelihood (*min-sheng*).” The proposal covered various projects such as investment in basic infrastructure, agriculture, education, and technology. In the absence of a proper response, Sun abandoned the effort to reform and sought instead to overthrow the Manchu government.

In 1897 Sun examined Chinese underdevelopment in his essay entitled *China's Present and Future*. The problem was rooted in complex relationships between the misallocation of agricultural resources and foreign trade¹⁵⁸ (Chang, 1983: 6–8, 12). In 1905, to overcome these problems, Sun argued, it was necessary to push for land reform and the equalization of land rights as the most urgent policy. Afterwards, land reform was at the center of policies initiated by Sun and his political organizations, named *Tongmenghui*.¹⁵⁹

However, land reform alone was not sufficient for national development. In 1907 Hu Han-min, Sun's principal spokesman, argued that China needed foreign trade and investment. Sun agreed but insisted that China convert international relationships from “zero-sum” to equally shared benefits. In order to accomplish this, Sun believed that China should construct

¹⁵⁸ For example, there was a surplus of production in some areas, but it could not effectively transfer the surplus to areas of famine. At the same time, a flood of cheap foreign commodities killed off indigenous producers and decreased local supplies of necessary goods.

¹⁵⁹ Sun emphasized two other issues: the national revival of China (*Minzu*) and the establishment of representation of people in politics (*Minquan*). These three principles (*Minsheng*, *Minzu*, and *Minquan*) became what Sun called “three principles of the people (*San-min Chu-i*).”

a strong and unified state. In this way, advanced countries could not abuse China, and the zero-sum relationship could change. On this basis, China would possibly allow foreign trade and capital investment to support development and share mutual prosperity (pp. 15–20).

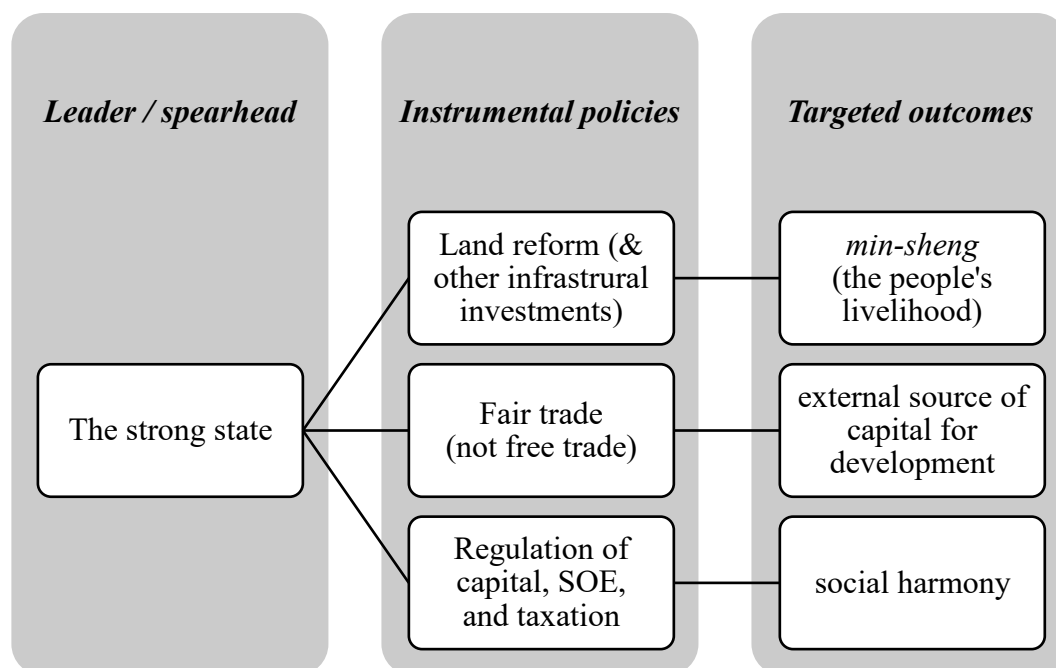
While land reform and fair trade could affect people's livelihood, Sun pointed out, each Chinese community had to "seek to harmonize its internal parochial and conflicting interests" in order to maintain social progress. Sun did not believe in a clash of interests as a means of progress (p. 21), and he proposed that the state could reconcile these varied interests by imposing taxation to more equitably redistribute society's wealth and regulation of capital (p. 22). Moreover, he supported the role of the state-owned enterprise.

Indeed, Sun did not promote the central planning and nationalization of all types of business. Sun argued in his essay, "The International Development of China," that "All matters that can be and are better carried out by private enterprise should be left to private hands, which would be encouraged and fully protected by liberal laws..." On the other hand, "all matters that cannot be taken up by private concerns and those that possess [a] monopolistic character should be taken up as [a] national undertaking...the property thus created [would] be state-owned" (p. 24).

In brief, we can conclude that Sun visualized a strong and protective state as a spearhead of Chinese development. The state should care about *min-sheng*, which is people's livelihood. In order to accomplish *min-sheng*, the state should impose land reform and other necessary policies. However, it was not enough to create resources domestically for development. Therefore, a strong state should renegotiate and improve inferior relationships with developed countries. In other words, a strong state should seek entry into the global market with "fair trade." Finally, any development might collapse if it allowed various interests to contest without being controlled; and it was even worse when some parties (i.e., capitalists and elites)

dominated society and caused chronic conflict among social groups. The state should play an important role reconciling these conflicts through the regulation of capital, state-owned enterprises, and redistributive schemes such as taxation, including land reform itself (**Figure 5.1**).

Figure 5.1: Simplified version of Sun Yat-Sen's model of development



The Great Defeat and Lesson Learns

Between 1907 and 1911, there were many uprisings¹⁶⁰ against the Qing government. All of the previous sacrifices had failed, but revolutionary groups in Wuchang, namely, the Literary Society and the Progressive Association, surprisingly and successfully revolted against the government on October 10, 1911. The victory of the uprisings inspired hope in other provinces

¹⁶⁰ In 1907, for example, there were four revolutionary efforts, namely, the Huanggang uprising, the Huizhou seven women lake uprising, and the Qinzhou uprising. In 1908 two more uprisings, the Qin-lian uprising and the Hekou uprising, occurred.

in central and southern China (Roberts, 1999: 212). This incident led the most powerful military leader of the Qing government at that time, Yuan Shikai, to negotiate with the *Tongmenghui*, and they secretly reached a conclusion.

In 1912 Yuan forced Emperor Puyi to abdicate and he became President of the Republic of China. At the same time, the *Tongmenghui* and other small political groups agreed to a merger and established a new party named the Kuomintang (KMT; the Nationalist Party). The KMT participated in parliament and actively checked Yuan's power. In 1913 Yuan revealed his dictatorship by threatening his opponents. Song Jiaoren, one of KMT's founders and a leading figure in Chinese parliament, was assassinated. In January 1916 Yuan proclaimed himself a short-lived emperor named Hongxian.

Yuan was abruptly challenged by many military warlords, of which Cai E, the governor of Yunnan, was very important. He brilliantly mobilized armies until Yuan's Beiyang Army was weakened. Consequently, Yuan had no power to consolidate the whole of China and surrendered his claim to be monarch on March 1916. Yuan died three months later and left China in a watershed moment (p. 216). Sun Yat-Sen died in 1925 when China was still controlled by multiple warlords. While Sun's successor, Chiang Kai-Shek, defeated the army of Yuan's successor in 1928, the KMT was fractured from the inside.

In 1927 the left-wing members of the party, led by Wang Jingwei, split to fight with the KMT as the Chinese Communist Party (CCP). This incident resulted in another long Chinese civil war. In 1933, after the KMT beat the CCP on several battlefields, the CCP made Mao Zedong its leader. The civil war was interrupted by the Second Sino-Japanese War (1937–45) and World War II (1939–45). In 1937 the KMT and CCP formed the United Front coalition to strike back against the Japanese empire. This collaboration did not last long. As soon as World War II ended in 1945, the rivals began fighting each other again.

This time, Mao was able to lead the CCP to victory on several occasions. Finally, the KMT realized its defeat and retreated from Mainland China to Taiwan in 1949. Core members of the KMT mutually diagnosed the cause of defeat as more than military issues and pointed to five core reasons: “(1) agricultural tenants rebelled against exploitation by landlords, while the nationalists continued to be identified with the landlords; (2) the labor union ran out of control; (3) bankers and financiers also broke loose, fueling a catastrophic inflation (**Table 5.1**); (4) the government became beholden to ‘vested interests’; and (5) party discipline collapsed” (Wade, 1990: 260). These findings would be used to reorganize the KMT and public policies in the 1950s when Chiang retreated to Taiwan.

Table 5.1: Cost of living, average incomes, and real wage indexes in Mainland China, 1937–1945

	Cost of living index	Average monthly income	Real wage index
1937	101	24	102
1938	116	41	155
1939	192	52	118
1940	550	100	80
1941	1,840	233	55
1942	4,135	436	50
1943	11,498	1,064	42
1944	39,094	3,854	43
1945	143,806	14,018	37

Source: Howard (2004: 138)

The Japanese Legacy

When the KMT marched into Taiwan in 1949, the island was not a *terra incognita*, but Taiwan had been occupied and developed by the Japanese empire for five decades before its arrival. In order to understand the KMT's choice of development, we cannot ignore the legacy of the Japanese empire.

First, the Japanese administration penetrated right down to the level of villages. The colonial government divided the whole population of the island into units of a hundred households called "*hoko*." Each *hoko* elected its own Taiwanese leader, who was supervised closely by Japanese policemen (Gold, 1988: 103). "So by 1945 the populace had much experience of an alien military and police presence intruding into many areas of social life, while it lacked the experience of managing large-scale organization and self-rule" (Wade, 1990: 232).

Second, during 1895–1930, the colonial government strategically incorporated Taiwan into its regional supply chain, in which Taiwan exported agricultural products and raw materials to the Japanese empire. Sugar and rice were two prominent exported commodities during that time. To promote agricultural production, the colonial government conducted a land survey in 1901 and imposed land reform in 1905 by which original landlords were forced to accept a government bond in exchange for an expropriated land right. Then, the government gave or rented out the land to tenants, who were responsible for paying the tax based on their estimated productivity (Gold, 1988: 105). As a result, the land reform could proceed more easily when the KMT controlled Taiwan after 1949 because the Japanese had already laid the foundations for the program. Moreover, the landlords had few incentives to oppose the land reform since they had already lost much of their land to the Japanese government.

Third, the Japanese government also invested and controlled sizable shares of the economy. Even if the state allowed the Taiwanese to invest and participate in the agricultural sector, the prominent producers were still Japanese firms. In 1924, for instance, the three largest Japanese sugar companies (Meiji Sugar, Toyo Sugar, and Taiwan Sugar) accounted for registered capital of approximately 136.75 million yen. In contrast, the three most significant Taiwanese firms (Lin Pen-Yuan Sugar, A-Hou Sugar, and Hsin-Hsing Sugar) held registered capital of only 7.2 million yen (pp. 106–8).¹⁶¹ When Japan retreated from Taiwan after World War II, the KMT seized all of these Japanese assets and companies. Therefore, the party and state-owned enterprises became a large part of the national economy.

Fourth, under the colonial government, the number of industrial workers gradually increased. In 1945 approximately 16,000 workers worked for the sugar industry (Ho, 2014: 482), Taiwan's most important sector at the time. As soon as World War II ended, the Chinese civil war resumed. The KMT needed more resources to fight the CCP so it quickly confiscated Japanese sugar companies. In 1946 approximately fifty sugar refineries were consolidated and expanded; therefore, the number of industrial workers increased proportionately. For example, between March 1946 and December 1947 alone, the number of staffs at the Taiwan Sugar Corporation (TSC) increased from 2,948 to 5,364; and the number of factory workers increased from 13,056 to 16,274 (p. 484).

5.2 Chiang Kai-Shek and the State's Capacity Building from the 1950s

As soon as the KMT retreated to Taiwan in 1949, Chiang had to consolidate its power over the island because the KMT needed to prepare to fight with the Communist Party. The way in

¹⁶¹ Later, 76.46 percent of registered capital owned by Japanese firms in 1929. The proportion was apparently high in industry (90.73 percent) and mining (71.57 percent) (Gold, 1988).

which the KMT consolidated its power, together with the above antecedent conditions, imposed constraints on the state and shaped its economic policies. Then, these economic policies formed the unique structure of the Taiwanese economy, namely, a tripartite structure that coexisted among state-owned, large, and small enterprises. This particular economic structure incrementally constructed a profile of Taiwanese labor and the labor movement in the 1970s.

The Political Consolidation of Chiang in Taiwan

After Chiang arrived in Taiwan, he implemented three strategies to consolidate power. First, he reformed the KMT and established a strong one-party state in Taiwan (Wade, 1990: 231–6). Second, Chiang secured military and economic support from the USA (Cullather, 1996; and Chang, 1965). Finally, Chiang utilized the strong power of the KMT, and the resources transferred by the USA, to create a political alliance outside the party (Wade, 1990: 246–53; and Gold, 1988). This part elaborates on these three issues.

During the reformation of the KMT, the party understood how it had been defeated by the Communist Party in Mainland China. One of the five important explanations was the “undisciplined” officials committed to corruption who ran the state ineffectively. Thus, in Taiwan, Chiang hurriedly purged those that he identified as undisciplined, including his potential opponents. Simultaneously, he appointed young, well-trained, and US-favored technocrats to important positions.¹⁶² K.C. Wu, for instance, was appointed Chairman of

¹⁶² While Chiang Kai-shek, who was already 68 years old in 1955, still reigned as the Generalissimo, he incrementally passed important tasks to his son (Taylor, 2000: 223). Chiang Ching-kuo, the right hand of his dad, controlled the military, security, the party, and young people via the General Political Warfare Department, the political action committee, the party reform commission, and the youth corps, respectively. “The few generals who were unfortunate enough to disagree openly with Chiang Ching-kuo – or to pose a potential threat to him – had a way of ending up as defendants in corruption cases, commandants in military schools, or ambassadors to foreign countries, rather than commanding troops at home” (Winckler, 1988: 157–8). In this way, Chiang Kai-shek could firmly control the party (at the same time, the party controlled the state), and made a succession plan.

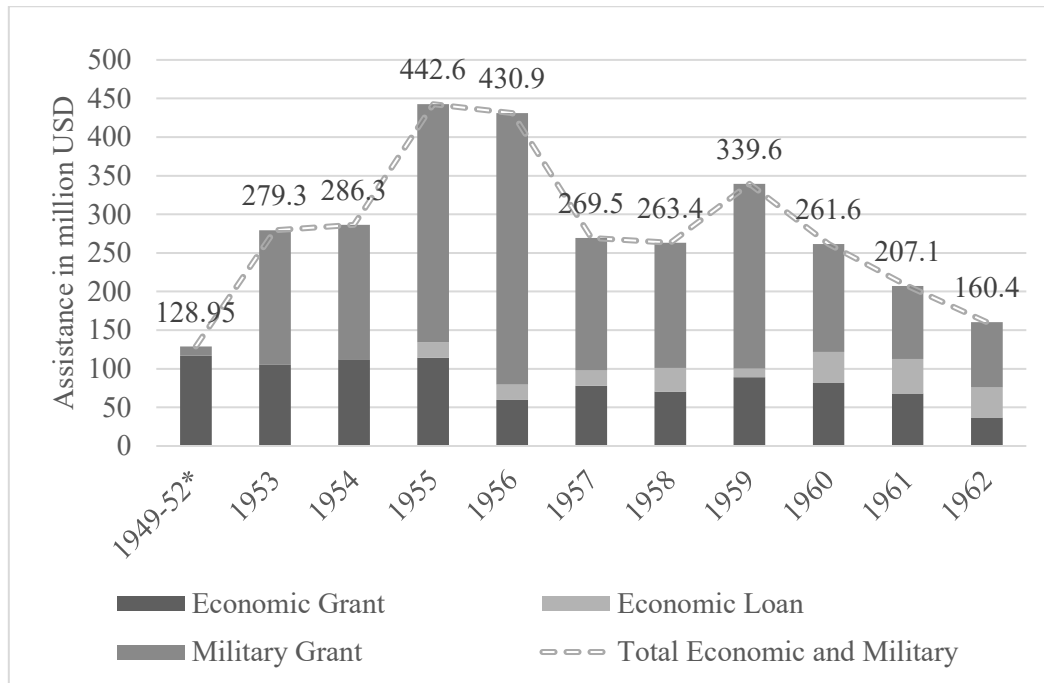
Taiwan Provincial Government. Ch'en Ch'eng became premier and head of the Central Reform Committee. Yin Chung-Jung took key positions in the key planning and resource-allocation agencies such as the Taiwan Production Board and the Central Trust (Cullather, 1996: 7).

In 1950 he also redesigned the party by dissolving the Central Executive Committee and establishing the Central Reform Committee intended to push a reform program for the KMT. Like the colonial government, the KMT penetrated its controlling apparatus into every level of state structure – national, provincial, county, municipal, and district. Even in private enterprises, there was a security office (*an-ch'uan-shih*), which ensured that the party's policies were properly implemented and also prevented any social resistance (Gold, 1986: 59–60). In this way, the KMT had become the state.

In terms of international relations, particularly with the United States (henceforth the US), in early 1950 the US President Truman decided to reduce aid for Taiwan. However, as soon as the South Korean War erupted, the US policy was changed to fully supporting Taiwan. At this point, the US needed Taiwanese cooperation for its regional strategy as much as Taiwan needed the US for its development. While the KMT imposed a development policy through which it opposed the market-led principle, the US government stood for the Taiwanese statist approach.¹⁶³ Without US aid, the average deficit of the government could reach 22–32% per year between 1956 and 1962 (Chang, 1965: 156), and the result could be disastrous. To avoid this problem, the USA continually poured budgets into the Taiwanese government's pocket. During 1949–61, US aid, in the form of both grants and loans on economic issues, was maintained (**Figure 5.2**).

¹⁶³ To some extent, it was because Taiwan and other East Asian countries (except Japan) did not have strong corporations and financial firms to lead the economy. Thus, the Taiwanese government had to play a considerable role, which the US government accepted (Cullather, 1996: 5).

Figure 5.2: US Foreign Assistance for Taiwan in million USD, Taiwan, 1949-1962¹⁶⁴



Source: Analyzed data from Chang (1965: 155)

US officials and Taiwanese technocrats together created the first four-year economic plan (1953–6), and the effort was continued and even intensely emphasized by bureaucrats in the second half of the 1950s, primarily because “by this time, it was clear that the communist regime on the Mainland was firmly consolidated, making an assault from Taiwan unlikely to succeed” (Wade, 1990: 246). Therefore, the KMT needed to develop the economy in order to guarantee the party’s survival, and US support was a necessary factor.

The KMT then utilized both the state’s power and highly supportive resources from the USA to establish a domestic alliance. The KMT invested in infrastructural projects and conducted land reform to favor peasants and protect an appeal of communism from Mainland

¹⁶⁴ *The first bar presented an annual average of US aid between 1949 and 1952. A cumulative value of the data was about 467.8 million USD.

China (this issue will be discussed in the following section). On the other hand, the KMT compromised with the big five families, namely, Ku, Lin, (another) Lin, Yen, and Ch'en, which had controlled a large portion of the Taiwanese economy since the colonial era.

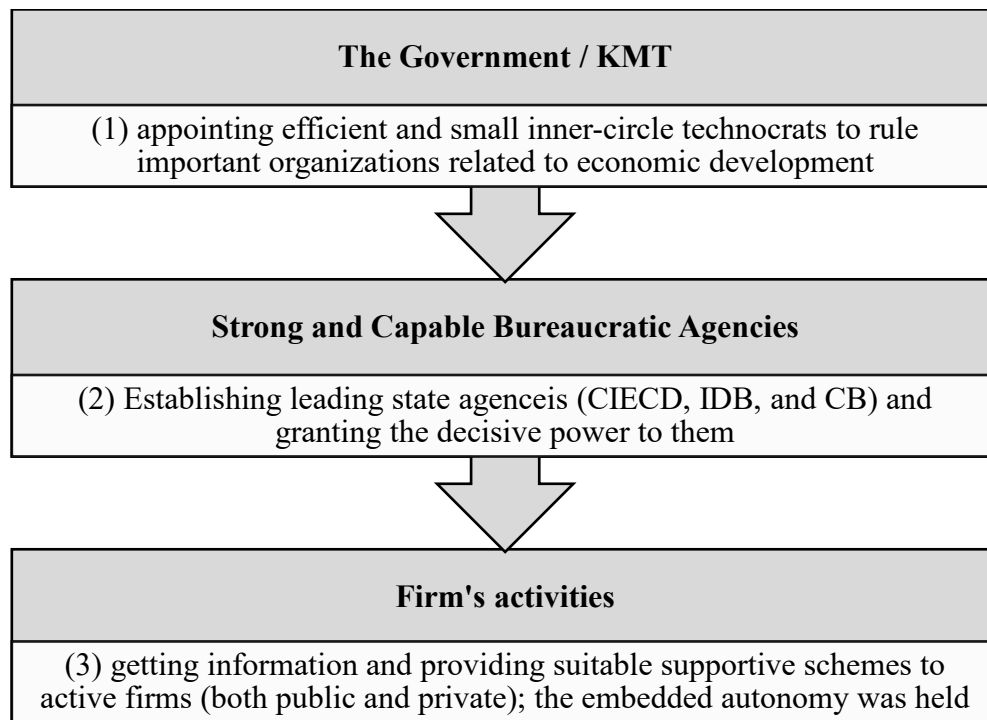
For example, the Ku family was led by Ku Hsien-Jung (1864–1938), who controlled lucrative businesses such as opium, tobacco, and monopolistic salt trading under the Japanese government. After the elder Ku died and Japan joined World War II, most of the Ku family's businesses were merged into Japanese companies by force, leaving only investment and land to Ku Hsien-Jung's son, Ku Chen-Fu. After KMT reached Taiwan, younger Ku actively supported and embedded himself into the party apparatus. He was appointed to the Central Executive Committee and managed some business ventures for the KMT. He also sat in the quasi-official Industrial and Commercial Association and represented abroad as a quasi-government ambassador. Other members of the big five families followed the same path as the Ku family (Gold, 1988: 109–16).

While Chiang Kai-shek and his son could finally consolidate the party, US aid, and the politico-economic alliance, they also needed to build efficient bureaucratic entities to formulate and implement policy.

Setting Efficient Bureaucratic Agencies and the Embedded Autonomy

The Taiwanese leader executed three strategies to formulate and implement economic policies through bureaucratic agencies (**Figure 5.3**).

Figure 5.3: Chiang's strategies to construct efficient bureaucracy during the 1950s–1960s



First, Chiang tried to build effective linkage between the government, ruled by the KMT, and the bureaucratic system. Unlike South Korea, which constructed a formal institution named the planning and control offices (POCs) to govern each ministry, the KMT *informally* formed an inner-circle group of handful technocrats and sent them to rule the crucial bureaucratic agencies. “Indeed, from the early 1960s to the mid-1980s, just five men had a preponderant voice in economic policy” (Wade, 1990: 217). Even if we considered important policy-makers to the 1950s, the number was scarcely more than a dozen. These technocrats had a similar educational background and most belonged to the KMT. Moreover, they worked side-by-side for more than a decade, which helped to create a consensus on a goal of national development (p. 217).

Second, the KMT formed three efficient and powerful organizations to plan, stabilize, and implement economic policies. The first organization worth mentioning was the Council

for International Economic Cooperation and Development (CIECD),¹⁶⁵ which was responsible for formulating annual, four-year, and ten-year economic plans for the cabinet. Besides, the CIECD also needed to evaluate large-scale public enterprises and review proposed projects from various ministries. However, it had no authority to rule or implement the plan directly; it was just an advisory body for the cabinet. The plan and suggestions had to be approved and executed by the cabinet in the final stage, meaning that the CIECD was a lighthouse, or navigator, of the boat named Taiwan (pp. 196–8).

The second important organization was the Industrial Development Commission,¹⁶⁶ which handled both the creation and implementation of the plan for sectoral development. Its functions were wide-ranging. For example, the commission turned extensive targets and details of the plan initiated by the CIECD into sectoral working plans. It also specified policy instruments (such as fiscal subsidies, tariffs, and loan offering) to promoted sectors or even firms and implemented those instruments properly. While a final decision on some instruments still belonged to the Ministry of Economic Affairs, the minister and the head of the commission generally reached a consensus. In other cases, the commission could proceed itself, for example, luring FDI (pp. 201–4).

The third remarkable organization was the central bank. Like the Industrial Development Commission, the central bank also belonged to the Ministry of Economic Affairs.

¹⁶⁵ The history of the CIECD dated back to the late 1940s. In 1948, when the Taiwanese government depended heavily on US aid, it established the Council for United States Aid (CUSA), managing foreign support. In 1963, when US aid decreased significantly, CUSA was reorganized and entitled the Council for International Economic Cooperation and Development (CIECD). Between 1967 and 1973, Chiang Ching-Kuo was the chair and head of the CIECD. After 1973, the organization was downgraded; however, council members were informally discussed and made economic decisions together. In 1977 Taiwan sent observers to South Korea and realized that Korea engaged in developmental projects radically. In 1978 the economic planning function was revived and the CIECD was transformed into the Council of Economic Planning and Development (CEPD) (Wade, 1990: 199–200).

¹⁶⁶ Initially, the Industrial Development Commission operated under the Economic Stabilization Board. After the board was demolished in 1958, the commission was transferred to the CUSA and the CIECD respectively. In 1970 members of the Industrial Development Commission, most of whom were engineers from the sectoral planning department, moved to form a new organization named the Industrial Development Bureau (IDB) under the Ministry of Economic Affairs (Wade, 1990: 202).

However, in practice, it had impressive autonomy from any public or private organization. The KMT granted sizable power to the central bank to maintain price stability because one of the reasons for the KMT's setback in the Chinese civil war was inflation. "Until 1980 the central bank was not even legally accountable to anyone other than the president" (p. 209). The bank had three important tasks, namely, maintaining price stability, managing the exchange rate, and handling other issues related to macro-economic stability.¹⁶⁷

Third, the KMT utilized the efficient network of technocrats and bureaucratic agencies to control and also support business groups. By law, "any sector with more than five firms must form an association" (p. 271). The government could get vital information and a disciplined private sector through these associations, as well as informal channels. At the same time, the government maintained its autonomy from these interest groups.

For example, in order to provide time for learning and improving the quality of consumer electronics products in the 1960s, the government imposed high tariffs and other supportive schemes. However, when private producers could not develop product quality quickly enough, the state signaled that it was ready to wipe out all incentives and turn to supporting multinational companies or state-owned enterprises. On one celebrated occasion, Wade (1990: 81) noted, "the chief economic planner ordered the destruction of twenty thousand light bulbs at a public demonstration in Taipei, and threatened to liberalize imports if quality did not improve." Another example came from the plastics industry. In 1966 four private firms produced polyvinyl chloride (PVC), but all were inefficient. Thus, the state forced all four companies to merge with the SOE named the Chinese Petroleum Corporation (p. 92).

¹⁶⁷ Six important technocrats – C.K. Yen, K.T. Li, P.Y. Hsu, K.H. Yu, Y.S. Sun, and K.Y. Yin – controlled these three leading organizations from the 1950s to the mid-1980s. For example, C.K. Yen was a chairman of CUSA (1957–8) and the CIECD (1963–9). K.H. Yu was the first chairman of the CEPD (1977–84). K.Y. Yin managed the Industrial Development Commission through the first half of the 1950s. The central bank was controlled by just two governors for more than two decades, namely, P.Y. Hsu (1960–9) and K.H. Yu (1969–84). K.T. Li managed the big picture as Minister of the MOEA during 1965–9. Then he shifted to controlling the Ministry of Finance during 1969–76.

The KMT then utilized the efficient bureaucracy and strong power of the KMT to impose various important policies, as discussed in the next section.

Economic Stabilization and Policies Between the 1950s and Late 1960s

During the 1950s–60s, Taiwan executed four important economic policies, namely, land reform, economic stabilization, investment promotion, and export promotion. I shall explain them in turn.

The first was land reform, which was driven by both ideological (Sun Yat-Sen's ideal) and political reasons (preventing communist appeal and social obedience from poor farmers). In 1949 the KMT *limited land rent* at 37.5 percent of their products, which helped to decrease production costs for tenant and part-tenant farmers, who paid around 50–70 percent to landlords in the 1940s (Greenhalgh, 1989: 92). Thus, the net income of these farmers increased substantially (Koo, 1966: 150).

In 1953 the party forced landlords to sell land exceeding 2.9 hectares to the state (the so-called *Land-to-tiller program*). To compensate, the state offered an underestimated share of some industrial firms to these landlords. On the one hand, the policy redistributed land to small farmers; and, on the other hand, it forced landlords to invest their resources in the industrial sector. While in 1939 around 2 percent of farming families owned land totaling more than 9.7 hectares, no one could hold more than this threshold in 1960. Moreover, only 3.2 percent of families owned 2.9–9.7 hectares during the same period (Greenhalgh, 1989: 94).

The combination of (1) diminishing size of the land owned by each tenant and (2) extended family caused a labor surplus and underemployment. These problems in the agricultural sector were resolved by sending the surplus labor to find jobs in urban areas. This,

in turn, supplied more industrial workers for emerging industries in the 1960s. The share of laborers working outside their villages rose from 16 percent in 1954–8 to 24 percent in 1964–8. Some began small businesses such as vegetable carts or newspaper stalls. The remittance also increased proportionately. Farming income decreased from 95 percent in the late 1950s to 15 percent in the 1970s (p. 96).

The second core policy during the 1950s–60s was economic stabilization. The most expedient issue was hyperinflation, which accounted for more than 600 percent a year during 1947–8 (Hsueh et al., 2001: 12). For the first five months of 1949, inflation was approximately 53 percent a month, or 630 percent a year (Makinen and Woodward, 1989: 91). This price instability was a threat to the survival of the Koumintang and one of the determinants of the party's failure in Mainland China. Hence, it implemented various policies to control prices. First of all, the party replaced the local currency, the Taipi yuan, with the New Taiwan Dollar (NT\$). The new currency was anchored by precious metal, especially gold. Then, the money supply was strictly limited from 1950, which helped to stabilize the price index (p. 93).

Furthermore, in early 1950 the government ordered all nationalized banks to offer an average deposit rate of 7 percent a month, or 125 percent a year. Therefore, the saving rate increased and inflation decreased. In 1950, between March and May, the saving rate increased sharply from 1.7 percent to 7 percent of the money supply. In order to check inflation, a high interest rate was maintained. Thus, the real interest rate was positive most of the time (except for 1973–4 and 1979–80). The average real interest rate was 9 percent during 1955–64, and around 8 percent during 1965–72 (Wade, 1990: 58). Together, savings increased continually from around 5 percent in the 1950s to 30 percent in the late 1970s (p. 61). In other words, the high interest rate and high savings rate was a default situation of Taiwan, related to not only economic stability but also the economic transition in the 1970s.

The third core policy was investment promotion. During the 1950s, the Taiwanese government could not reduce interest rates to stimulate domestic investment because it wanted to prevent hyperinflation. So, interest rates needed to be maintained at a high level. As an alternative, in order to promote investment, the government chose to nationalize the banks and monopolize almost all of the savings. Consequently, massive amounts of savings were controlled by the government, which could be allocated to invest in targeted businesses. In the 1950s the government instructed a credit allocation target to commercial banks, which had to arrange loans to support the targeted companies. In the late 1960s the target was concretely defined in a more precise way and narrowed down to 6–12 prioritized sectors, which was really important because around 75 percent of loans went to the targeted industries (p. 166–7).¹⁶⁸

The US government also invited US consultant companies such as the J. G. White Engineering Corp. to help Taiwanese technocrats identify suitable targeted industries, namely, textiles, plastic, synthetic fiber, cement, food, and other upstream industries. Moreover, the supportive scheme was extended beyond the issue of loans to other things. For example, in the textile industry, the Taiwanese government directly supplied raw cotton to spinning mills, advanced all capital requirements, and bought up all production. As a result, the production of cotton yarn increased by around 200 percent and wool yarn went up by 400 percent from 1951 to 1954 (p. 79). The chemical industry was also picked up to provide intermediate goods for the synthetic fiber industry (p. 80). These policies reduced business risks and induced or, more precisely, transferred profits to targeted firms in the targeted industries.

Because of the successful expansion of textiles and other necessary products, there was an excess supply in the late 1950s, which required another core policy – export promotion –

¹⁶⁸ More than the credit target, the government also utilized various special purpose funds such as the Sino-American Fund for Economic and Social Development and the China Development Corporation (CDC) to support targeted industries. Certainly, this method worked well under the specific condition of having a strong and capable state to get the necessary information from the private sector and to utilize the information to allocate resources for enhancing productive activities among private firms.

involving three vital policies. First, the exchange rate was simplified. Before 1958 the Taiwanese exchange rate had multiple rates, which caused many problems, including inefficiencies of resource allocation and unnecessary speculation on the currency. In 1958 three technocrats, Yin Zhongrong, Jiang Shuojie, and Liu Dazhong, successfully simplified the exchange rate system (Haggard and Pang, 1994: 74; Wu, 2016). Second, in December 1959, the government established the tax refund and offsetting policy, which included import tax, defense surtax, commodity tax, and harbor duties. Finally, the government also devalued the local currency.

All three policies led to an expansion of exports. The export to production ratio in the textile industry, for example, increased from only 1.36 percent in 1958 to 8.56 percent in 1959 and around 20 percent in 1962. The utilization rate of the tax refund was also obvious. The ratio of the tax refund to export increased from 2.3 percent in 1958 to 8.5 percent in 1960 (Wu, 2016: 11–18). Because of the successful reform of the exchange rate and export promotion, the 1960s was labeled the phase of export-oriented industrialization. The export to GDP ratio surpassed the world average and Japan in 1961 (p. 21). The growth of GDP also flourished during this period, and the unique economic structure of Taiwan was established. It was a tripartite structure of development, which I will elaborate on more in the next section.

Table 5.2: The summary of industrial policies in Taiwan in the 1960s

Policies/tasks	Methods	Outcomes
Land reform	Forced landlords and capitalists to sell and exchange lands with equity shares in an industrial sector	Increased wealth equality, and forced capitalists to develop the industrial sector

Policies/tasks	Methods	Outcomes
Anti-inflation (as economic stabilization)	Increased the interest rate and decreased monetary growth	Decreased consumer price indexes, increased the costs of capital, and increased savings
Investment promotion	Provided credit and other forms of subsidy for targeted firms in the targeted industries	Reduced business risks, induced profits, and encouraged local capitalists
Export promotion	Simplified exchange rates, provided tax refunds and subsidies, and devalued the currency	Increased export value and volume

Economic Transformation and Tripartite Structure of Development

Between 1950 and 1970, production of the primary sector (agriculture and raw materials) decreased from 36 percent to 15.5 percent of GDP.¹⁶⁹ During the same period, the contribution of manufacturing products increased from 15.6 percent to 36.8 percent (Cheng, 2001: 23). In terms of export composition, between 1952 and 1972, agricultural exports decreased from 91.9 percent of total exports to just 16.7 percent. In contrast, the export values of industrial products increased sharply from 8.1 to 83.3 percent (p. 30). In brief, Taiwan's economic locomotive had already converted from domestic agriculture to export industries.

The unique Taiwanese industrial structure also took shape between 1961 and 1975 (Wu, 2005: 183). First, it was SOEs that produced approximately 11–13.5 percent of GDP and controlled 27–38 percent of gross fixed capital formation during 1950–80 (Wade, 1990). These SOEs focused on (1) security-related industries, (2) monopolistic or oligopolistic industries, and (3) utilities and infrastructure (Xu, 1997: 401). Second, the state supported large private enterprises (LEs) to play the role of a provider of intermediate products in the domestic market

¹⁶⁹ It is the current price GDP.

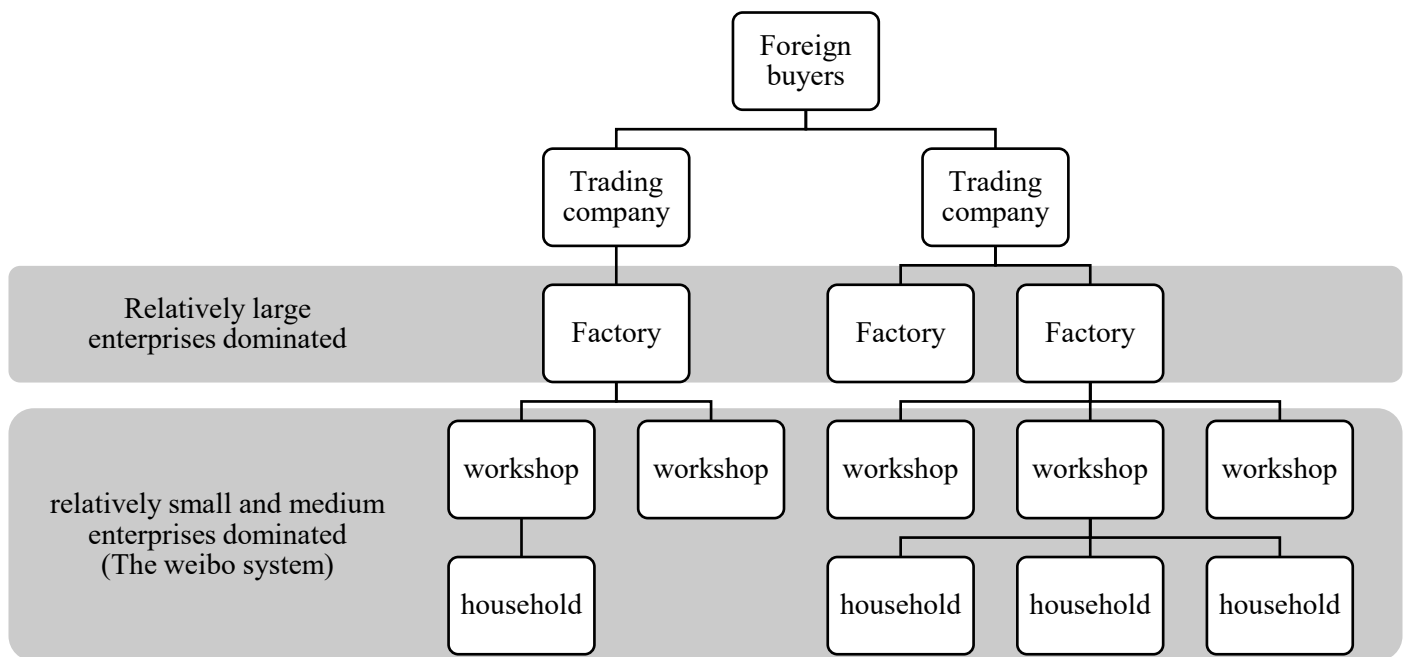
and assemblers of exported goods. For instance, in 1971 seven of the ten largest private enterprise groups (Lai Qingtian, Yadong, Xiao Brothers, Taiyuan, Lin Rongchun, Tainan, and Xinguang) were textile-based and major exporters (Wu, 2005: 226). Third, small and medium enterprises (SMEs) played an important role as suppliers in the network production of LEs and were actively engaged in the export market

These three types of enterprise interacted with one another in a sophisticated manner. Skoggard examined the structure of the shoe industry in Caotun Township, located in the northwest corner of central Taiwan. **Figure 5.4** represents this finding. At the top are foreign companies, which ordered shoes through the trading companies (both local and foreign), which then sourced qualified products from local factories. Generally, the factories were large enterprises (LEs), 28 percent of which could manage to finish ordered products within their own firms. However, 72 percent could not and needed to outsource certain procedures to SMEs (Skoggard, 1996: 96, 103).

The outsourcing method of LEs was called “*weibo*,” a system that was really important to Taiwan. It originated and was widely used in the 1970s, when a labor shortage had initially occurred and the factory needed to obtain a pool of labor in distant rural areas (p. 101). Instead of bringing workers out of their hometowns, factories outsourced modules (a set of parts) to local workshops, which then generally outsourced the most basic parts or processes to household-level production.¹⁷⁰ According to Skoggard, the workshop accounted for approximately 67 percent, and the household level for 33 percent of the system (p. 103).

¹⁷⁰ In this way, the factories could utilize the reserves of female workers in rural households.

Figure 5.4: The production network of the Taiwanese shoe industry in Caotun Township in the 1970s¹⁷¹



Source: Modified from Skoggard (1996: 96)

SMEs (fewer than 99 workers)¹⁷² shared 99.3 percent of registered enterprises in 1961. The ratio was maintained at 97.2 percent in 1966 and 95.3 percent in 1976 (Wu, 2005). The number of workers employed by SMEs in the manufacturing sector increased from 42.7 percent of the sector’s employment in 1966 to 59.6 percent in 1976 (Park and Johnston, 1995: 191). One might expect that SMEs played a crucial role only in the labor-intensive and low-tech sectors; however, this was not the case. As stated by **Table 5.3**, the number of registered SMEs

¹⁷¹ In some cases, the trading companies bypassed large enterprises and ordered cheap commodities directly from SMEs (Wang, 2001: 350). Together, “although state-owned and big privately owned enterprises existed, they were not like the Japanese or South Korean big firms that have dominated the commodity chain (vertical integration)” (p. 351).

¹⁷² According to modern criteria, SMEs were defined as having fewer than 250 employees. However, within the context of Taiwan in the early 1970s, this ratio might be too high. Moreover, the official data was classified into 6 thresholds: 1–9, 10–19, 20–49, 50–99, 100–499, and more than, or equal to, 500. Hence, I decided to use the threshold of 1–99 for SMEs.

in various sectors mostly increased, even in hi-tech industries (i.e., machinery, and electrical and electronic products).

Table 5.3: Numbers of small and medium enterprises¹⁷³ by industrial categories

Industrial category	1954	1981	Percentage change
Food, beverage, and tobacco	12,200	8,697	–29%
Textile and wearing apparel	7,043	8,943	27%
Leather and fur	202	1,053	421%
Wood, nonmetal furniture	4,989	8,662	74%
Paper and printing	955	6,429	573%
Chemical and energy	850	2,528	197%
Rubber and plastic products	395	8,672	2,095%
Nonmetallic mineral	1,935	3,712	92%
Machinery	3,007	19,430	546%
Metal and metal products	1,112	10,473	842%
Electrical and electronic products	729	4,818	561%
Transport equipment	3,443	3,150	–9%
Other	2,888	4,846	68%

Source: Modified from Park and Johnston (1995: 188)

These SMEs and the *weibo* system were the foundations of Taiwanese flexible production and the capability of the Taiwanese economy to compete in the global market. Generally, SMEs took raw materials and intermediate goods from LEs and proceeded to produce final goods. Then SMEs sold their products back to the trading companies for sale to the global market. In this way, SMEs, trading companies, and LEs were an almost perfect fit

¹⁷³ The definition of SMEs in Park and Johnston (1995) was different from above paragraph. It was defined by 20-200 employees.

in the case of Taiwan. The value of output generated by LEs, the gateway to the global market, increased from approximately 65.5 percent of the manufacturing sector in 1966 to 72.7 percent in the next decade (Wu, 2005: 227–9).¹⁷⁴

KMT Enterprises as Large Private Enterprises

In Taiwan there was another special type of enterprise – the KMT-run enterprise – that had a Janus-faced status. Although, they registered legally as private enterprises, before the 1980s these enterprises could not be separated from the state because the KMT exercised state powers to support these firms. No one, probably with the exception of the Finance Committee of the KMT Central Committee, knew exactly how much these businesses were involved in the Taiwanese economy (Xu, 1997: 400), but scholars agreed that the value of these enterprises was substantial.¹⁷⁵

As illustrated in **Table 5.4**, between 1946 and 1979, these KMT-run enterprises controlled assets of approximately 24,753.5 million NT\$. The party's share varied; however, on average, the party controlled a sizable share (44 percent) of these companies and had influential power that determined the directions of businesses, which were wide-ranging, covering manufacturing products (i.e., textiles and electronics) to transportation and investment companies. However, this table still did not include more than ten media and service

¹⁷⁴ One might doubt whether the model can explain the hi-tech industries that developed in the late 1970s and 1980s. According to Ernst (2000: 245–6), Taiwan's hi-tech sectors, such as the computer industry, were also initiated by collaboration among large enterprises and SMEs in order to seek the global market. This issue will be discussed again in the next chapter.

¹⁷⁵ According to one speculation, “at the end of [the] 1980s the book value of the assets of [the] KMT party's enterprises was more than 10 percent of the total of the private enterprises, and the total output of the party's enterprises accounted for at least 6.2 percent of GDP” (Xu, 1997: 400). In the 1950s–60s, the state still largely manipulated the economy; therefore, the proportion of the party's enterprises might be higher than expected.

businesses, which belonged to the KMT Cultural Committee, for example, Central Daily and the China Broadcasting Company.¹⁷⁶

Table 5.4: KMT's party enterprises, 1946-1979¹⁷⁷

Year created	Name	Business	Asset (million NT\$)	Party share (%)
1946	Qilu		190	100
1951	Yutai		250	100
1955	Fengyu	Textile	643	17.1
1956	Zhongxing	Electrics	967	50
1959	Zhonghua Kaifa Xintuo	Financial trust	3,082	12.2
1962	Taiwan Zhengjuan Jiaoyisuo	Stock Exchange	1,199	4
1962	Zhongyang Chanwu Baoxian	Industrial insurance	360	100
1965	Zhonghua Maoyi Kaifa	Trade development	280	50
1965	Guohua Haiyang		206	14
1965	Jingde Zhiyao		190	100
1966	Jiantai Shuini		1,874	39.6
1967	Taiwan Jianye		1,100	50
1968	Zhongyang Zaibaoxian		1,000	7
1969	Guangnan Qiye		1,450	7.4
1970	Xingxing Tianzi		180	30
1970	Wanbang Tianzi	Electronics	201	14.9
1971	Zhonglian Xintuo		1,000	52.21
1971	Zhongyang Touzi	Investment holding	1,400	100
1972	Yangming Haiyun	Marine transport	NA ¹⁷⁸	NA
1975	Kunda Fuyi Tianzi	Electronics	68.5	12
1975	Donglian Huaxue		2,490	24.9
1976	Zhongyang Piaojuan	Stock exchange	1,500	58.2
1976	Zhongwei Shihua		2,154	25
1978	Zhongguo Gangtei Jeigou		234	18.31
1978	Zhounghua Piaojuan	Stock exchange	1,115	36.58

¹⁷⁶ Others were Central News, Zhengzhong Publisher, Zhonghua Daily, Hong Kong Time, Central Movie, the China TV Company, Zhongyang Wenwu Gongyinshe, and Jinguo Tuan (Xu, 1997: 413).

¹⁷⁷ From 1980 to 1989, KMT established at least other 15 companies. Between 1990 and 1997, the party further founded at least 16 enterprises. During this period, these KMT's enterprises expanded even more radical than the 1970s and 1980s. Just only three enterprises, namely, Huaxin Yinhang, Taixiang Hangtai, and Zhongjia Kaifa Touzi, had capitals (23,000 million NT\$) nearly equal to total assets of KMT's enterprises during the 1940s-1970s (Xu, 1997: 411-413).

¹⁷⁸ According to website of the company, the initial capital of the company was 100 million NT\$. However, the capital increased rapidly to 1,000 million NT\$ in 1980 and 2,010 million NT\$ in 1981 (Yang Ming Group, accessed February 12, 2020).

Year created	Name	Business	Asset (million NT\$)	Party share (%)
1979	Guanghua Touzi	Investment holding	40	100
1979	Yongjia Huaxue		980	49
1979	Zhongding Gongcheng		600	17.76
		Average	916.8	44.1
		Total	24,753.5	-

Source: Modified from Xu (1997: 411)

These enterprises enjoyed many privileges, from public policies to exclusive information, which finally provided uncompetitive gains for them. For example, when the government switched policies to support the hi-tech sectors or announced large construction projects in the late 1970s, these KMT enterprises promptly responded and participated in the projects (p. 406). The point of mentioning the party's enterprises here is that we should be cautious when we read Taiwanese statistics about private enterprises. Particularly before democratization in the late 1980s, when the KMT was the state, these party enterprises performed as the de facto state enterprise.

5.3 Labor Controls, Gradual Protests, and Development in the 1950s–1970s

The previous section portrayed the conventional narrative of how the Taiwanese state collaborated with capitalists to develop export industries and generate economic growth during 1950–70. However, those phenomena do not provide the complete picture of Taiwanese development. Another important part was labor controls during the 1950–70s and the emergence of organized labor at the end of the 1970s. These organized labor movements were closely linked with the dynamics of factor prices, especially real wages, that triggered economic transformation in the 1970s.

Labor Controls as Part of the Koumintang Reformation in the 1950s

When the KMT arrived in Taiwan, it could not know how many supporters would follow it. So, the party hurriedly surveyed and rebuilt KMT memberships. The survey revealed a weakness inherited from Mainland China, namely, a lack of workers' support (Dickson, 1993; Chen et al., 2003: 319) and uncontrolled unions (Wade, 1990: 260). **Table 5.5** shows that the percentage of workers among newly recruited members declined from 23.8 percent in 1951 to just 9.1 percent in 1953. After that, the ratio never went beyond a one-digit percentage. These workers, at most, accounted for approximately 9.4 percent of total members of the KMT in the 1950s (Ho, 2012: 1022).

Table 5.5: New recruits to the KMT, 1950–1961

Period (year/month)	Newly recruited members (people)	Taiwanese (% of recruited members)	Workers (% of recruited members)
1951/1–1951/12	27,666	60	23.8
1952/1–1952/8	14,945	63.8	50.3
<u>1953/1–1953/12</u>	<u>56,686</u>	<u>32.8</u>	<u>9.1</u>
1954/1–1954/5	34,051	53.1	6.5
1955/1–1955/6	33,557	47.5	8.8
1957/10–1959/5	62,735	33.5	9.7
1959/5–1960/9	43,967	38.3	NA
1960/9–1961/8	27,098	38.2	NA

Source: Modified from Ho (2012: 1024)

This finding alerted the KMT to labor issues, resulting in it designing and creating a labor regime that closely controlled labor unions and movements. However, it simultaneously bonded workers' interests with the KMT. To accomplish these contradictory objectives, the party devised three strategies. First, the KMT government utilized various labor laws regulating labor unions and movements. Second, the party focused on *workplaces* as the smallest units of the party's management. Third, it constructed mutual interests between the party and partisan labor unions. All these strategies are detailed below.

First of all, the Labor Union Law (*Gonghuiifa*)¹⁷⁹ was designed to “ensure that individual unions were organizationally fragmented and weak and that there was no horizontal linkage available” other than the official and partisan national union named the “Chinese Federation of Labor (CFL)” (Ho, 2006: 111). Under the CFL, unions were allowed to organize “only at plant or workplace (*gongchang*) level. With the exception of state-owned enterprises, it was not even permitted to form joint unions representing workers in different factories under the same owner” (p. 113). This workplace-centered approach was learned from a CCP manual (Dickson, 1993: 63).¹⁸⁰

Under the CFL, there were only two legal types of labor organization. The first was an industrial union that workers in officially registered workplaces exceeding thirty employees were permitted to form (Ho, 2006: 110). The second was an occupational union, which “functioned as a residual category available to those who could not join industrial unions” (p. 112), for example, self-employed people and even owners of SMEs. The participation rate was

¹⁷⁹ It was enacted in 1929 and revised four times (1931, 1932, 1937, and 1943) before the KMT retreated to Taiwan (Wang, 2010: 63). It was substantially revised again in 1949 (Ho, 2006: 110).

¹⁸⁰ The KMT investigated a CCP manual and found that the CCP took advantage of “using the workplace as the basis of urban party organizations” (Dickson, 1993: 63). As a result, the KMT quickly adopted this method in Taiwan (p. 96). Chiang Kai-Shek stated that, “it was necessary to study and use the CCP's methods in order to defeat it” (p. 61).

high because “union membership was a prerequisite for the government-supported labor insurance” (ibid.). Hence, all workers had an incentive to join the union system.

The state-governed CFL hierarchy linked the national and the plant level; therefore, the KMT could intervene in all labor issues via partisan unions. According to the 1951 Guidance Plan for Labour Movement in the Current Stage, the KMT emphasized that party branches needed to cooperate with plant-based unions, as well as other supportive entities, such as a welfare committee and women’s mutual help society (Ho, 2012: 1026).¹⁸¹ Furthermore, the KMT constructed a cell system, which bundled 10–15 workers under a cell leader, who was accountable for controlling members and responded quickly if cell members were dissatisfied with something (p. 1029).

These efforts led to the inseparable relations among “a trinity of party, factory, and labor union (*dang chart hui de sanweiyiti*)” before the 1980s (p. 1026). Certainly, this structure did not allow autonomous factions of union members to rule (p. 1027).¹⁸² For example, before the mid-1980s, there was no anonymous voting for union management, and “the personnel department used workers’ personal seals to fabricate voting records” (ibid.). As a result, union leaders were mostly picked from those who were loyal to the KMT.¹⁸³ Furthermore, unions could not hold meetings without having observers from the KMT. As such, labor movements were checked at plant level (Deyo, 1987: 184) without having the chance to be extended or leveraged.

¹⁸¹ In many large and state-owned enterprises, there was an *employee relation committee*, which was actually the branch of the KMT.

¹⁸² It did not mean that there was no autonomous faction at all. Some were rank-and-file members; however, they still encountered structural barriers and needed time to overcome them. The autonomous faction would initially gain momentum via “petty bargaining” in the 1970s.

¹⁸³ For example, in the case of the Taiwan Petroleum Workers’ Union (TPWU), the union leaders such as Zhang Hanmin (TPWU President: 1961–3) and Zhang Renlong (TPWU Standing Director: 1970–72) had security-related backgrounds and were loyal to the KMT (Ho, 2012: 1027).

Although the KMT and its employees securely controlled the unions, it generally used a “silk glove” instead of an “iron fist” to manage the relationship. For instance, in the state-owned enterprise named the China Petroleum Company, workers established the Taiwan Petroleum Workers’ Union (TPWU) in 1959. The company gave a loan of 500,000 NT\$ to the union and subsidized the union’s fee for memberships. Furthermore, the company gradually transferred resources and responsibilities for welfare matters such as training courses, transportation, and even wedding ceremonies to the union (Ho, 2012: 1025).

In 1967 the Taiwan Sugar Corporation (TSC) created 16 primary schools, which exclusively provided education for its employees’ children. Moreover, these schools were free of charge. The TSC also allowed retired workers to live in the company’s residence many years after they stopped working. In extreme cases, the company subcontracted works to independent companies established by ex-TSC employees (Ho, 2014: 494). These benefits were given to workers in order to control them. As long as they complied with the company (SOEs) and the KMT, these benefits were sustained. The government also enacted the Provisional Measure on the Minimum Wage in 1956, three decades before South Korea.¹⁸⁴

Labor Controls through Informal Institutions

Beyond the aforementioned formal mechanisms, there were at least three informal institutions that helped the state and capitalists in SMEs to control workers. They were the “idea” of black-hand-turns-boss, a family-based and society-tied system of production, and gender discrimination.

¹⁸⁴ This issue will be discussed in detail in the next chapter.

In Taiwan, many blue-collar or black-hand (*heishou*) and white-collar workers (*shangbanzu*) dreamed of ultimately becoming a boss (*laoban*). The *laoban* was “someone who is subordinate to no one but him/herself and who commands others at his/her own discretion” (Numazaki, 1997: 442). Because these workers were determined to be the boss, they worked hard to learn and accumulate wealth as a temporary process in their lifetime career. Then, when they had earned enough, they set up their own small businesses. Afterwards, where possible, they leveraged their small businesses to relatively larger businesses¹⁸⁵ (Stites, 1985). In this way, they could bear the hardship of work and at the same time could not easily cultivate the kind of full consciousness of the working class to fight with their own bosses. To a certain extent, these workers considered themselves the capitalists of the future. One Taiwanese activist said that:

“The ideology of factor was very difficult. ‘What’s wrong if bosses want to make more money?’ ‘When times are bad, factory owners have no choice but to sack people and cut wages.’ In labor movements you constantly had to battle such ways of thinking” (Taiwanese labor scholar, interviewed by Liu, 2015: 56).

The idea of the black-hand-turns-boss, however, was not the only thing that constrained Taiwanese workers from struggling against repression from the state and capitalists. Again, the *weibo* system consisted of SMEs dispersed through small towns and rural areas. In these areas, the organizational structure of production was often based on social and family relations. To

¹⁸⁵ This idea of the black-hand-turn-boss was amplified by many successful businessmen, such as Wang Yongqing, who started a business as the *laoban* of a small lumber shop. He went on to become the boss of the largest plastic company in Taiwan (Numazaki, 1997: 440).

elaborate on this issue, I shall begin with the issue of surnames in Taiwan. A Chinese surname was not necessarily arranged to the same lineage. For example, the Hong surname in Canton was defined by the ceremonial circle, centered on the Diye god, and the original province, Fujian, where members of the group migrated from Mainland China. There were many factions in the same surname. However, these factions were connected for social and economic purposes.

In Canton, four great surnames, namely, Li, Lin, Hong, Jian, controlled 44 percent of the whole population, 20 percent of employment, and 13 percent of total industrial assets in the area. If we included other smaller surnames, namely, Chen, Zhang, Huang, Wu, Xu, and Liao, in the calculation, these surnames held around 66 percent of the population, half of the registered factories, 35 percent of employment, and 28 percent of industrial assets (Skoggard, 1996: 121). In this way, the Chinese surname was inclusive in the sense that it internalized multi-lineage into the same network and shared resources such as job opportunities, funds, and information. At the same time, the surname also disciplined workers in many ways.

For instance, job opportunities generally opened up for workers with the same surname. As Skoggard observed in two factories and fifteen workshops, 33–35 percent of workers in each production unit were part of the four great surnames. The ratio reached more than 60 percent when he factored the other six largest surnames into the survey. In this way, workers needed to work hard in order to protect the reputation of their referees, who usually had the same surname. It was also possible that the boss and the workers could reach a compromise when disputes occurred because they came from a close client network by default. These characteristics provided clues for understanding the situation of labor disputes in the mid-1970s and the economic transformation in the late 1970s.

Finally, labor control also took place in the smallest unit of social relations – the household (*jia*). Each *jia* had a father as the family leader. The wealth of the family had to be divided equally between all of the sons when they separated to form their own families. However, sons who married and did not separate still shared the wealth of the family with other unmarried members. The sub-family within the household was called “*fang*” (Numazaki, 1997), which supplied workers for household-level production. In this way, as family members, workers could not act against the family leader. Indeed, the household-level production also employed members of other families, but they often came from the neighborhood and their family leaders might be connected. Therefore, labor disputes were limited and closely controlled by default.¹⁸⁶

The gender issue also mattered at household level. In the mid-1970s, only 69.3 percent of the female population (aged 12–17) could access secondary education. This ratio was lower than the male and national average (Lee, 2004: 34). Among many other reasons, these women dropped out to become unpaid workers for their own or their husbands’ families. Beyond household work, these women provided labor in household-level production or even workshops near their homes. This trend was endorsed by the government. In 1968, two years after export-oriented industrialization was officially implemented, the KMT announced the Community Development Program. Two vital projects under this program were the “Living Rooms as Factories” (*Keting ji gongchang*) and “Mothers’ Workshops” (*Mama jiaoshi*) (Hsiung, 1996).¹⁸⁷

¹⁸⁶ The government also endorsed this relationship by promoting the motto of “Make the factory your home, make the factory your school (*Yi chang wei jia, yi chang wei xiao yundong*),” utilizing jargon for the family-based relationship to control workers (Wang, 2010: 63).

¹⁸⁷ The aim of these two projects was to reproduce the idea of good women in Chinese ethics and also to utilize the idle time of women in local communities to supply products for the economic sectors. “Professionals/workers” was the additional task of the modern woman in Taiwan (Hsiung, 1996: 50). These projects worked well; therefore, the KMT continually injected funds and other support. From 1968 to 1981, the KMT spent 147.5 million USD on the Program (p. 48). By 1982, 75 percent of 1,526 selected residents reported that their communities had a Mothers’ Workshop, and 51 percent even regularly held the class. In the late 1980s, the government sent more than 8,000

Petty Bargaining in the 1960s and Gradual Protest in the 1970s

Under these formal and informal mechanisms, laborers could not freely organize themselves. At most, they did what Ho Ming-Sho called “petty bargaining.”¹⁸⁸ The mechanism was simple. The party’s cell members investigated workers’ dissatisfaction, so-called “social investigation (*shehui diaocha*),” and reported to upper management. If the demands were manageable, they were resolved. For example, the KMT’s publication in the Taiwan Sugar Corporation recorded several results of social investigation and petty bargaining between 1963 and 1967 (**Table 5.6**). Furthermore, the enterprise’s welfare committee, the entity that provided welfare services for employees, expanded from 490 committees in 1960 to 2,103 in 1975 (Chiu, 2002: 491).¹⁸⁹

Table 5.6: Examples of petty bargaining in the Taiwan Sugar Corporation, 1963–1967

Year	Demands
1963	The children of TSC employees should enjoy the same education subsidy as public servants and teachers.
1964	The TSC should adopt the practice of province government enterprises to pay one month's salary as the annual bonus.
1965	The TSC should increase the special promotion fee for procurement workers.
1965	The TSC should increase the subsidy for farming workers who use private motorcycles.
1966	TSC workers who study in private colleges should be subsidized in the same way as those studying in public colleges.
1967	TSC school employees should be remunerated in the same way as regular employees.

Source: Ho (2012: 1030)

supervisors to train the program participants and published 160,000 copies of *Mam Duben*, the textbook for the Mothers’ Workshop (p. 50).

¹⁸⁸ This type of bargaining had three core features. First, it was aimed at sectoral instead of collective interests. Second, it focused on wages and welfare benefits rather than employment and collective rights. Finally, it was justified by comparison but not general principle (Ho, 2012: 1030).

¹⁸⁹ It expanded more than four times between 1960 and 1975, though this number was still lower than the ideal. In 1988, for instance, it covered only 8.98 percent of the enterprises legally required to establish the committee according to labor law (Chiu, 2002: 490).

In SMEs the petty bargaining mechanisms were informal, and mediation by factory managers, who acted on behalf of the owners, also played an important role in mediating the needs of both capitalists and workers. In Hsiung's manuscript (1996: 62), *Living Rooms as Factories*, one manager said:

“We managers are the mediators between the boss and the workers. We have to communicate their [the workers'] opinion to the boss, while at the same time watching out for the boss's pocket... It isn't really a bad thing if the workers are not happy with their wages. It implies that they have the potential to be worth more. How to manipulate them all depends on us, the managers... Chinese are humble. We seldom talk about how good we are, not to mention boast. When things come down to a wage conflict, I always turn the issue around by asking the workers to give me a figure. That is, I ask them to tell me exactly how much more they believe their labor is worth. If they can't come up with a concrete price, then they have to listen to me. I may decide to give them a raise. I may not. It's all up to me. Even if they do give me a price, the chances are it will always be lower than the real value of their labor. For example, if what they really want is a one-hundred-dollar raise, as Chinese they will only say that their labor is worth eighty dollars... By handling it this way, their productivity will go up because I do show them that I did recognize their unrest [and give them a raise] ... It is a win-win battle for the company when things come down to wage conflict, you know.”

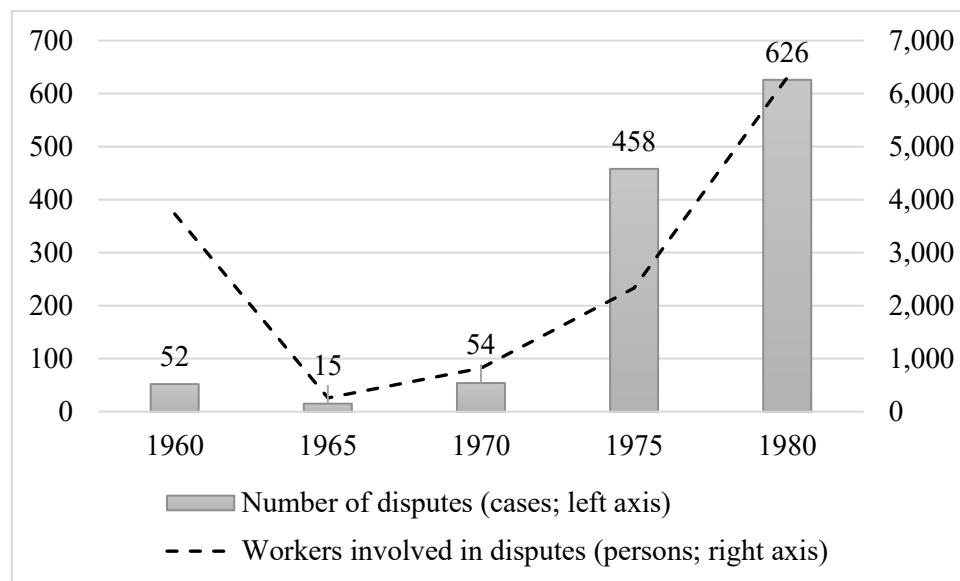
This petty bargaining, on the one hand, provided some illusionary views that the labor force could get what it wanted through KMT platforms or shop managers. On the other hand, the state apparatus tightly controlled labor movements. Hence, labor disputes in the 1960s were limited and could not maintain their momentum when movements were initiated. For example, the number of labor disputes decreased from 52 incidents in 1960 to just 15 incidents in 1965. During the same period, the number of workers involved decreased sharply from 3,731 to just 259 (Chiu, 2002: 488).

While most of this effort failed to elicit positive responses from the management, it continually created experience of negotiation and bargaining. Moreover, “the compulsory membership fee, no matter how nominal it was, encouraged the members to expect tangible results from their union leadership. A sense of entitlement took root among members; it was increasingly difficult to limit union services within the given parameters” (Ho, 2012: 1031). In other words, after laborers engaged in petty bargaining in the 1960s, they increased their demands and expectations in subsequent periods.

In the 1970s two important events occurred. First, Chiang Kai-Shek died in 1975. While he transferred power to his son, Chiang Ching-Kuo, in the late 1960s, his death led to political transition within the KMT itself and created a chance for democratic movements outside the party. Second, Taiwan encountered a labor shortage. The unemployment rate decreased from 4 percent in 1960 to just 1.7 percent in 1970, which reflected the full-employment condition (Chiu, 2002: 397; Fields, 2004: 731). Hence, the autonomous factions of the unions in SOEs and LEs, as well as individual workers in SMEs, took advantage of these two conditions and mobilized for better well-being.

Between 1970 and 1975 the number of labor disputes increased from 54 to 458. The number of workers involved increased from 823 to 2,329 (**Figure 5.5**).¹⁹⁰ Although these struggles occurred in SMEs, and 92 percent of the cases involved fewer than ten workers (Liu, 2015: 71), the autonomous factions of labor unions in large enterprises gradually organized.

Figure 5.5: Labor management disputes, Taiwan, 1960–1980



Source: Chiu (2002)¹⁹¹

For example, in 1975, 7,000 female workers tried to strike in the US-invested company General Instruments (p. 70). However, the KMT quickly intervened and curtailed the plan. The

¹⁹⁰ Another data set collected by Chu (2003: 25) stated that there were 73,908 workers engaged in 1,585 cases of labor disputes between 1973 and 1976.

¹⁹¹ Liu (2015: 58) found the same result that is the frequency of the dispute in Taiwan was even higher than Korea in the 1970s and the early 1980s. However, the total number of disputes did not directly represent the real leveraged power of Taiwanese labor organization because of two reasons. First, it was about the definition of the disputes. In the case of Taiwan, the government collected all collective actions led by workers as the disputes. But, a Korean official usually collected only stoppages at a shop-floor (Lee, 2011: 14). Second, a number of workers who involved in each dispute was low in Taiwan. It was approximately 47 workers per dispute between 1973 and 1976 (Chu, 2003: 25). The number even lowered to 12 workers per dispute if the period was extended to cover from 1966 to 2001. These numbers could not comparable to the Korean case that had on average 392 workers per dispute (Liu, 2015: 58).

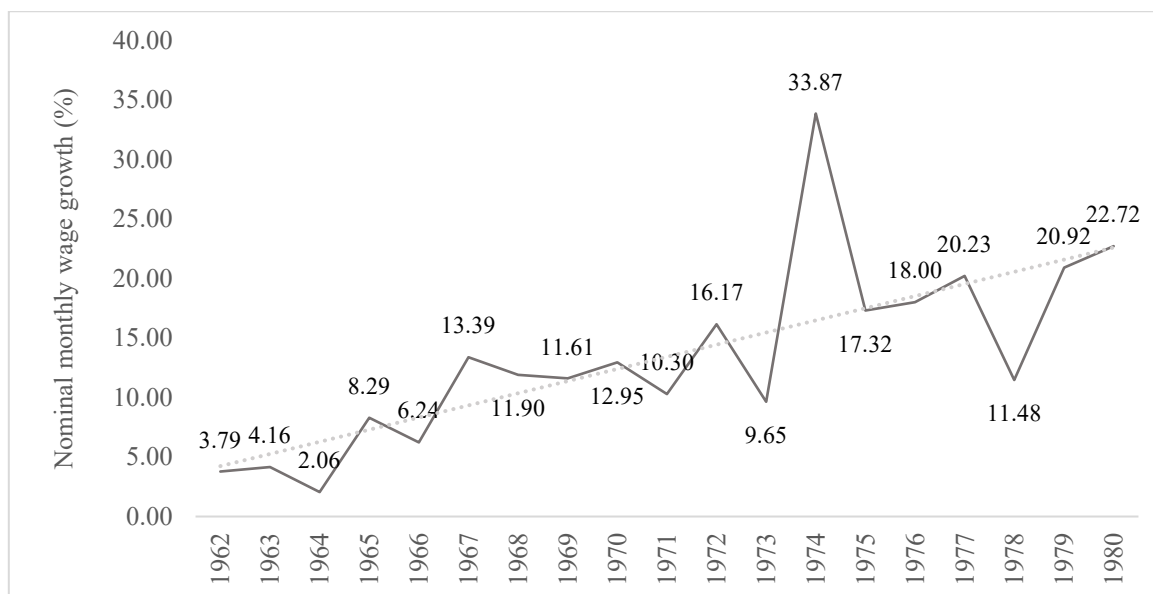
labor organizer aligned with the KMT and argued that, “any sign of labor disturbance would be reported to the upper branch and we would intervene immediately and solve problems quickly. We would not let things deteriorate into workers taking to the streets” (Liu, 2015: 69). According to Chiu (2002: 488), only 3.9 percent of the disputes in 1980 could not be resolved. Furthermore, the unresolved cases had never been more than 7 percent of total disputes (Liu, 2015: 71). This again reflected the crucial role of the government as mediator.

In 1977¹⁹² workers jointly established the first independent union at the Far East Textile Company. Instead of repression, the KMT handled it by sending representatives into the union, but they were the minority in the union management. This effort inspired workers in other industries. For instance, laborers in railways (led by Yang Chin-Chang) and petrochemical industries tried to establish independent unions; however, most were unsuccessful. These failures signaled to labor organizations that they could not mobilize alone, so they turned to the, loosely called, *Dangwai movement*, which means “outside of the (KMT) party.”

Minns and Tierney (2003: 112) evaluated all of these lively movements in the 1970s as “the beginnings of a genuinely independent union movement after decades of repression.” Afterwards, the movements continually pulled nominal wages up. As seen in **Figure 5.6**, nominal wages gained positive momentum and persistently increased from the late 1960s to the end of the 1970s. Real wage growth also had a consistent pattern, except for the data in 1974, when the inflation rate surged to 47.41 percent. This negatively affected and pressed real wages downward to -13.54 percent (**Figure 5.7**).

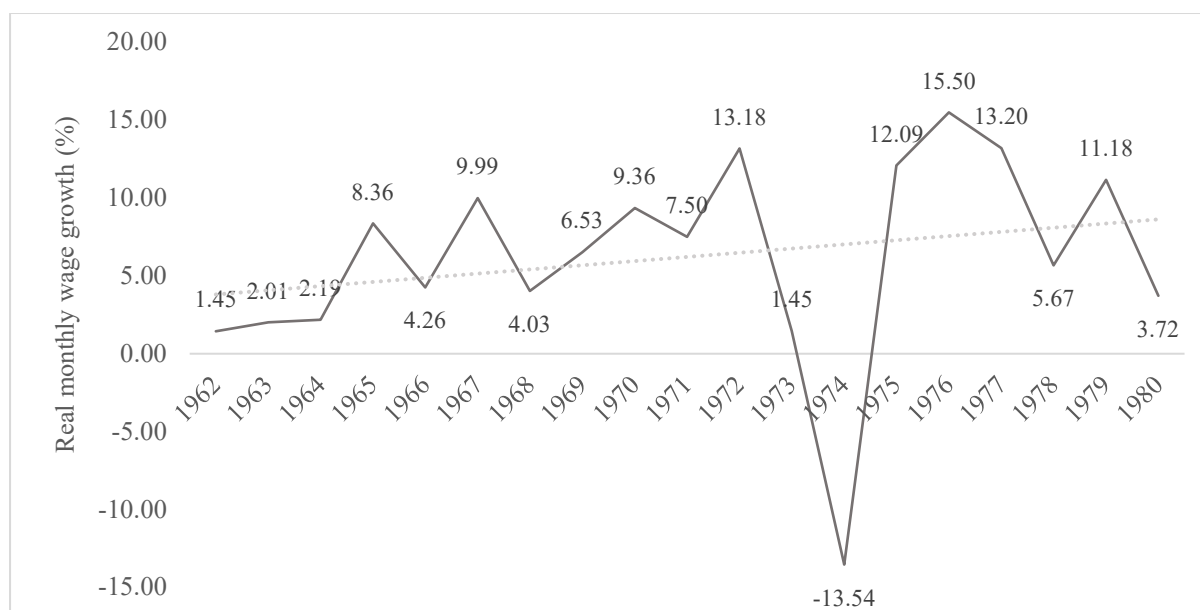
¹⁹² During the time, there was another important event named “the 1977 Chungli/Zhongli riot” against a flawed election.

Figure 5.6: Nominal monthly wage¹⁹³ in Taiwan and their percentage changes, 1962–1980



Source: Calculated by author based on National Statistics of Taiwan (accessed March 14, 2019)

Figure 5.7: Real monthly wage growth in Taiwan and their percentage changes, 1962–1980



Source: Calculated by author based on National Statistics of Taiwan (accessed March 14, 2019)

¹⁹³ National Statistics of Taiwan collects all sources of employees' incomes and calculates the average monthly earnings. This data is separated into regular earnings and irregular earnings. This thesis uses the regular part (salary and fixed monthly subsidies), and it is roughly equivalent to wage definition in the case of Korea and Brazil.

Unlike South Korea, the Taiwanese government quickly enacted the minimum wage law in the 1950s. As illustrated in **Table 5.7**, the minimum wages shifted from 300 NT\$ in 1956 to 450 NT\$ per month in 1964. This accounted for 5.2% per year in nominal terms and 3.85% in real terms. Afterwards, both nominal and real minimum wages skyrocketed, during 1968–80, when the labor movements incrementally revealed themselves. Impressively, the average real minimum wage growth accounted for approximately 18 percent per year.

Table 5.7: Provisional measures on the minimum wage enacted by the government, 1956–1978

Year	Minimum wages (NT\$)		Compound annual growth rate (CAGR)	Average real minimum wage growth
	per month	per day		
1956	300	-	-	-
1964	450	-	5.2%	3.85%
1968	600	-	7.46%	5.04%
1979	2,400	80	13.43%	18.15%
1980	3,300	110	37.50%	18.5%

Source: Calculated by author based on nominal minimum wage and CPI indices from the Ministry of Labor, Republic of China (Taiwan) (accessed February 24, 2020)

The wage growth rates in Taiwan were comparable to those of South Korea (Amsden, 1989); however, the pace of productivity improvement also surpassed wage growth (Deyo, 1987: 197). In this way, Taiwan could maintain the competitiveness of the nation. As illustrated in the previous two chapters, if higher wages pushed the South Korean state and capitalists to adjust themselves toward HCIs and hi-tech sectors, it should motivate the Taiwanese state and

capitalists in a similar manner. Since the mid-1970s, Economic Affairs minister – Y.S. Sun – had declared:

“However our competitive strength based on low costs of labor is eroded by *the slow but persistence increase in wages*, the plain fact that we can no longer count on labour intensive industries as the mainstay of our export trade. We must now strongly emphasize the development of higher skills so that our exports products will contain relatively more skills and technology and relatively less scarce energy and imported materials.” (Lauridsen, 2008: 456).¹⁹⁴

Transformation of the State’s Industrial Policies in the 1970s

In the 1970s real wages took off from about 4.2 percent a year during the previous decade to 10.8 percent per year. At this rate, “Taiwan’s real wages had risen to a level that industrial development in Western Europe and North America had taken seven or eight decades to accomplish” (Hsueh et al., 2001: 52). Several negative shocks also occurred in this period, such as the oil price crisis in 1973 and 1979, as well as the termination of diplomatic relations with the US government in 1979–80. These incidents, particularly higher wages, shaped the economic policies of the Taiwanese government in the late 1970s.¹⁹⁵

First, there was a stabilization package. Because of supply-pushed factors such as higher oil prices and wages, inflation began to rise in 1973 and increased sharply in 1974. Again, Taiwan’s default macroeconomic policy was to control inflation. As such, the

¹⁹⁴ The similar statement was expressed by another prominent technocrat – K.T. Li – during the same period.

¹⁹⁵ Several works have reviewed the policies in detail, such as Wade (1990) and Hsueh et al. (2001); therefore, this work will not go into detail. It will point out only the necessary issues and use them to explain a capitalist upgrading production.

government hurriedly tightened the monetary policy and increased interest rates. Loan rates, for instance, increased by a quarter to 16.5 percent a year. At the same time, deposit rates increased from one-third to 15 percent a year to anchor price expectations. To avoid a growth slowdown,¹⁹⁶ the government simultaneously increased fiscal expenditure. These strong actions then decreased the inflation rate to just 3 percent a year and maintained GDP growth at 10 percent a year during the second half of the 1970s (Wade, 1990: 97).

A consequence of the stabilizing package and labor movements was the “double-high” condition: high interest rates and high wages. Unlike South Korea in the 1970s, this condition decreased the incentive to develop heavy and chemical industries (HCIs) such as automobiles, ship-building, and steel, which required highly concentrated and cheap capital as the input.¹⁹⁷ Then, Taiwan shifted quickly from the HCI plan, which was stated in the fourth economic plan (1965–8), to encourage the technology-intensive industries, namely, machines, semiconductors, computers, and telecommunication in the late 1970s (Hsueh et al., 2001: 57, 59; Wade, 1990: 97). These sectors required support from research and development (R&D).

The second issue was research and development. K.T. Li, a core member of the KMT’s technocrats and the ex-Minister of Finance, was appointed chairman of the Coordinating Committee for the Application of Science and Technology to National Objectives in 1976.¹⁹⁸ Hsueh et al. (2001: 57) outlined that, in the past, science and technology affairs mainly focused on basic research instead of applied science and technology. The formation of the new ministerial committee was “a new direction” related to progress of the industrial policy in

¹⁹⁶ The draconian increase in interest rates tended to create investment contraction and lead to a growth slowdown.

¹⁹⁷ Indeed, some HCIs, particularly petrochemicals, were closely related to security issues and previously developed sectors such as textiles, synthetic fibers, and plastics, so the support continued. Furthermore, Chiang Ching-kuo personally preferred to retain the development of HCIs; however, his technocrats such as K.T. Li disagreed with it and aimed for the technology-intensive sectors (Hsueh et al., 2001: 58). More than petrochemicals, other HCIs mostly depended on SOEs, which controlled cheap and concentrated capital in its own right.

¹⁹⁸ This appointment was initiated partly because Chiang Ching-kuo wanted to remove K.T. Li from the Ministry of Finance. The two figures clashed from the implementation of the ten-year development projects in the first half of the 1970s (Hsueh et al., 2001: 57).

Taiwan. In 1978 Li hosted the First National Conference for Science and Technology, which led him to draft a Science and Technology Development Program in 1979, a broad-based view with the aim of illustrating how to adapt research to production.

In parallel, the Investment Review Council of the Ministry of Economy announced in 1976 that the council changed its priority to the technology-intensive industries. In 1978 the Ministry of Finance also arranged 200 million NT\$ to encourage foreign and domestic technical experts to apply new technologies. The term “strategic industries” was coined in the revision of the six-year plan in 1978. It was defined by six criteria – “two bigs, two highs, and two lows: (1) big linkage effects to other sectors, (2) large market potential, (3) high-technology intensity, (4) high value-added, (5) low-energy intensity, and (6) low pollution intensity” (p. 63). Broadly speaking, electronics-related industries satisfied these criteria, so the government actively paid attention to them from the late 1970s.

In 1976, for instance, the Electronics Research and Service Organization (ERSO)¹⁹⁹ got technological transfers from the US firm named RCA. Three years later, ERSO commercialized the transferred technology, a wafer fabrication, by establishing a company named the United Microelectronics Corporation (UMC) with private firms. From the 1980s, UMC was the center for developing integrated circuit technologies and diffusing results to domestic firms. Another interesting example was the Institution for Information Industry (III) created in 1979. The institution energetically promoted applications of the information technology, in both public and private organizations. Many administrations and tasks were computerized, and officials were trained to utilize the technologies to improve their services (pp. 60–61).

¹⁹⁹ ERSO is the government-supported research institute (GSRI) under the Industrial Technology Research Institute (ITRI).

The third issue was the investment promotion policy, especially in strategic industries and technology-related activities. For example, the government created the Development Fund (1973) for lending or making investments in technology-intensive enterprises, indicated in the economic plan. It spent approximately 250 million USD between 1973 and 1982 (Wade, 1990: 169). The credit allocation policy was continually implemented based on the list of targeted industries (p. 166). Various tax incentives were given to eligible investments (p. 183). The government even allowed foreign companies to capitalize on their technologies and valued them at almost 15 percent of a company's shares in the case of joint ventures (p. 152).

Beyond this pecuniary support, the government reorganized ineffective or "excessive competition" industries. The synthetic fiber industry, for example, was continually running at a loss, since the 1973 oil crisis. The government tried to help it in various ways; however, its financial status was still disappointing. Finally, the government forced five leading firms to merge and converted their debts into shares in a new joint company in 1978. Another policy related to the industrial structure was a Program for Promoting Center-Satellite Factory System. The aim of this program was to establish long-term contracting relations among the LEs and SMEs²⁰⁰ in their supply chain (p. 187), which was important for coupling their growth.

Fourth, and finally, there was the issue of import protection and export promotion. From the late 1970s to early 1980s, the average import tariff was decreased from 40 to 31 percent. The effective rate was even lower, at 11 percent, in the mid-1970s. To a certain extent, this was because the US government was trying to reduce the trade deficit and force the Taiwanese government to ease many tariffs. However, non-tariff barriers remained strong in the 1980s, and 49.65 percent of the import value faced some restrictions conditioned by the characteristics of importers and approval documents. When domestic players, especially SOEs in upstream

²⁰⁰ Taiwan also established the Guarantee Fund in 1974. The fund provided a credit guarantee for SMEs and some large enterprises to secure larger loans and better terms from the financial sector (Wade, 1990: 170).

industries, encountered strong foreign competition, the government simply closed the door and did not grant any import licenses (p. 132).

In 1976, for example, when local firms began to produce a styrene monomer, the state stopped granting the import license and forced domestic buyers to source the chemical goods from locals. In the steel industry, the government established China Steel in 1971. Afterwards, most steel-related items had to be approved by the company in terms of whether they should be allowed to import. In downstream industries, these restrictions were based more on private performance. If local producers did not perform well, the government generally sanctioned them by revising and terminating support. Export promotion was equally important. In 1970 the government established the China External Trade Development Council (CETRA), which was responsible for creating trade fairs and finding foreign markets for Taiwanese products (p. 145). Short-term export credit was moderately important in the mid-1970s; it was valued at around 6.3 percent of total loans in the banking system in 1972 (p. 142).

These four core industrial policies in the 1970s are summarized in **Table 5.8**.

Table 5.8: Summary of industrial policies in Taiwan in the 1970s

Policies/tasks	Methods	Outcomes
Anti-inflation (as economic stabilization)	Increased interest rate against two oil crises and created fiscal expansion	Decreased consumer price indexes, increased “more” costs of capital, and discouraged investment in HCIs
Promotion of high-technology industries	Established public-funded research institutes, invested in R&D, and transferred technologies to private firms	Formed basic capability for high-technology production

Policies/tasks	Methods	Outcomes
Investment promotion	Provided credit, protection, and subsidies for targeted firms in high value-added parts of the high-tech industries	Reduced business risks, induced profits, and encouraged local capitalists
Import protection and export promotion	Shifted from high-tariff rates to using non-tariff barriers protecting local producers	Preserved the domestic market and provided time to increase technological capability for local producers

Capitalists' Adjustment in the Late 1970s and Early 1980s

In the late 1970s labor disputes stimulated wages to reach a high level, while the state implemented high interest rates and supportive packages for technology-intensive industries. These two conditions concurrently triggered capitalists to adjust toward high-tech productions.

Indeed, there was no such quick switching from less technology-intensive industries (such as textiles in the 1960s) to more technology-intensive industries (such as electronics in the 1970s). Capitalists in the less advanced technology industry tried, as far as possible, to maintain their production methods and products. Based on historical fact, structural transformation took time to accomplish, and it was a kind of contradictory activity, whereby, on the one hand, capitalists tried to stand still and, on the other hand, they also evolved for their own survival.

The Textile Industry

In the textile industry, wages increased substantially in the second half of the 1970s. Between 1975 and 1979, the average individual monthly wage leveled up from 13.7 percent a

year to 19.6 percent a year (Tu, 2001a: 206). Together with other issues such as oil-price shocks and the rise of other competitors from emerging markets, textile industrialists had to evolve to survive, encouraged by the state. The government enacted *the Guidelines to Speed up the Reform of the Textile Industry* in 1979, which were designed to encourage textile capitalists to (1) merge and reorganize their operations, (2) invest in R&D and quality, (3) diversify products, and (4) create a Joint Export Promotion Group.

Capitalists responded well to these factors. For instance, large enterprises in the industry were more concentrated. A share of companies with more than 1,000 registered employees shrank from 14.99 percent of the existing factories in 1976 to 9.3 percent in 1981. At the same time, SMEs with 1–9 and 10–19 registered employees increased both in number and shares of factories (p. 207). This phenomenon was not just reorganization for economies of scale among large enterprises but also a gateway for the textile industry to the global market. However, it reflected the deepening structure of the industrial supply chain toward SMEs. The same pattern of change also appeared in another closely linked industry, the apparel industry.

Another trend was diversification to relatively technology-intensive products within the same industry. For example, before 1964 only rayon staple and filaments were produced in the industry. Leading products were quickly diversified in the late 1960s to sophisticated manmade fibers such as nylon filaments, polyester staple, polyester filament, and polyacrylonitrile staple. The diversifying trend, measured by the production of these goods, expanded rapidly from the late 1970s. For instance, supplies of polyester staple jumped from 68,594 metric tons in 1976 to 114,679 metric tons in 1977. Polyester filament supplies also expanded from 98,620 metric tons in 1977 to 133,310 metric tons in 1978. In contrast, during the same period, supplies of the basic rayon staple and filament were stable (p. 201).

With these strategies, capitalists in the textile industry could maintain the share of textiles in the manufacturing industry at around 9–11 percent through the 1970s (p. 194). However, the production growth of manmade fibers finally dropped to one digit in 1979, and continually decreased its contribution to the manufacturing sector, national growth, and exports in the 1980s.

The Petrochemical Industry

Another interesting example was the petrochemicals. The industry had three parts: upstream, midstream, and downstream.²⁰¹ Major products of the upstream industry such as toluene, ethane, and ethylene were initially controlled by an SOE named the China Petroleum Corporation (CPC). Since the 1950s, the government was heavily involved in the establishment of private firms in the downstream industry, particularly the Formosa Publics Corporation (Tu, 2001b: 239). In the 1970s, when the labor disputes expanded and wages increased significantly, the government turned to supporting the capital-intensive industries, the HCIs. As such, upstream and downstream production expanded. For example, the CPC invested to magnify the capacity of the naphtha and ethane cracker four times between 1973 and 1984. The total investment accounted for around 71.488 billion NT\$.

Like the textile industry, private firms in the downstream industry diversified their products, in terms of both establishing new products and making a quantitative expansion in existing products. For instance, in 1971 private firms initially produced vinyl chloride monomer. Supplies of formaldehyde jumped from 58,791 metric tons in 1972 to 110,312

²⁰¹ In the upstream industry, it produced basic feedstock such as propylene, butadiene, ethylene, benzene, toluene, o-xylene, and p-xylene. These chemicals proceed in the midstream industry to create intermediate raw materials. For example, propylene changed into polypropylene. Ethylene is transformed into low- and high-density propylene. Ethylene can also be used to make vinyl chloride. These intermediate raw materials are then utilized to produce plastic products in the downstream industry (Tu, 2001b: 227).

metric tons in 1973 (p. 232). The Formosa Plastics Corp. invested more in midstream products, making high-density polyethylene, vinyl chloride monomer, and acrylic ester (p. 235). However, the second oil price shock (the petrochemical industry used derivatives of oil and gas as the main input), high interest rates, and moderate increasing wages discouraged investment in the HCIs. These factors turned the state policies and capitalists' investments toward electronics-related industries in the 1980s.

The Electronics-related Industries

The electronics-related industries²⁰² were in fact initiated in 1948, when the first vacuum tube radio was made in Taiwan. In the 1950s small factories began to import radio parts to assemble for sale. Until 1960 electronic machinery and equipment accounted for less than 1 percent of national exports. Between 1961 and 1973, Tu (2001c: 271) called the period a "large-scale assembly period." In thirteen years, the total amount of foreign investment increased from 115,600 USD in 1961 to 7,574,800 USD in 1973 (p. 271). The famous multinational company, IBM, for instance, established its computer company. The first black-and-white television set was also produced in this period (p. 270).

In 1974 the average monthly earnings of Taiwanese workers increased by more than 35 percent. Many industries had moved toward high-capital-intensive activities in response. The foreign investment from 1961 to 1973 accounted for only around 134,100 USD per registered cases. However, between 1974 and 1979, foreign investment per project increased to 302,700

²⁰² Taiwan was not very success in the shipbuilding industry. During the 1960s Taiwan invested heavily in the shipbuilding industry. The government made a joint venture agreement with a Japanese shipbuilder in 1965 for technological transfers (Sohn et al., 2009: 40). A targeted product was ships for oil vessels. In 1969, when Korea exported only 250 fishing boats, Taiwan progressively built nine 100,000-ton oil tankers (p. 42). However, the oil price crises in the 1970s reduced the demand for oil vessels and Taiwanese ship exports declined (p. 43). Together with other factors (i.e., higher wage rates), Taiwan retreated from HCIs, including the shipbuilding industry, in the 1980s (Chen, 2014: 4) and moved to the electronics industry.

USD, meaning that capital intensity improved 2.25 times in just six years. These funds mainly focused on the relatively higher-technology-intensive products. For example, ERSO worked with the US RCA to bring in IC technology.²⁰³ Moreover, the products were diversified from basic radios, black-and-white televisions, and transistors – the major products from 1961 to 1973 – to produce more complicated goods such as cassette recorders, color televisions, digital calculators, and digital watches between 1974 and 1979 (p. 273–4).

²⁰³ In order to realize the production and application of the technology, they established the model factory, which cost around 489 million NT\$ and took four years to construct the plant (Tu, 2001c: 273).

Chapter 6:

Taiwanese Developmental Labor

Triggered the High-Tech State

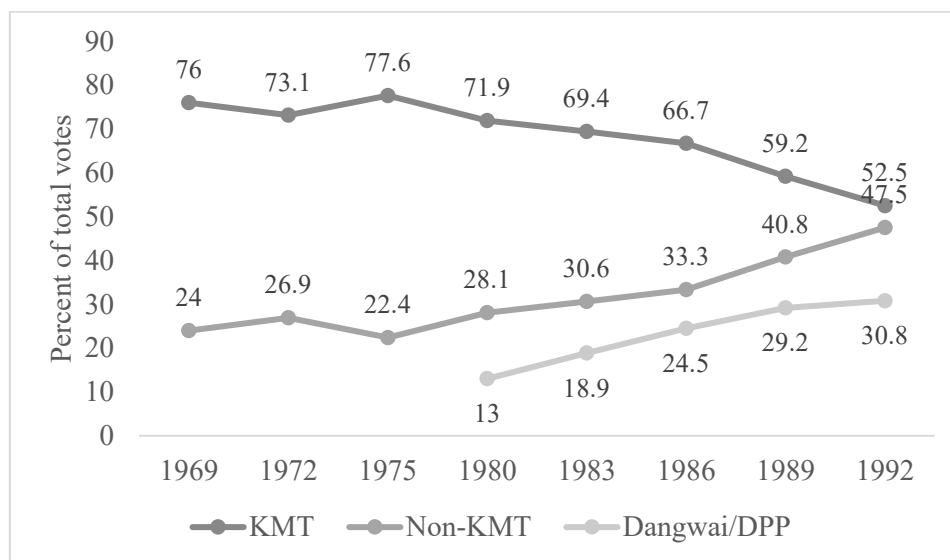
In the 1970s, Taiwan invested more in capital-intensive activities, imported technologies, and tried to imitate advanced products. However, investment in R&D and local knowledge initiation were still limited. This situation changed incrementally in the 1980s, when labor disputes increasingly expanded. The dispute was rapidly elevated in 1987 after the KMT demolished martial law. During the same period, an opposition party named the Democratic Progressive Party (DPP) was formed and played a vital role at national level. The dramatic increase in wages forced the government and capitalists to intensify the developing trend toward being technology-intensive in order to compete with other emerging markets. In this period, Taiwan tried to develop short-cycle technologies (i.e., electronics) and paid more attention to local knowledge (Lee, 2013). Based on the continuity of these developments, the institutional features of Taiwanese capitalism were incrementally transformed toward what should be called “the simulated network market economy” (simulated NMEs).

6.1 Organized Labor and Wage Increases after 1980

Labor Disputes, Negotiations, and Higher Wages

There were two emerging trends in the 1980s. The first trend was the effective engagement of democratic movements,²⁰⁴ whereby the non-KMT politicians gained more votes in local elections. Between 1951 and 1989, the non-KMT candidates obtained seats in the region of approximately 24.5 to 37.8 percent of total representatives in Taiwan's provincial assembly, around 21.4 to 47.3 percent in the county magistrates and the city majors, and around 16.2 to 39.7 percent in the county and city councilors (Lee, 2011: 67). Moreover, the vote shares of the non-KMT party in the supplementary legislative elections increased from 22.4 percent in 1975 to 28.1 percent in 1980, rapidly increasing to 47.5 percent in 1992 (**Figure 6.1**).

Figure 6.1: Votes shares of the KMT and oppositions in supplementary legislative elections



Source: Lee (2011: 67)

²⁰⁴ From the late 1950s, the KMT partially opened for competition in local politics. However, an election was manipulated by KMT members. From 1969 to 1975, for example, KMT candidates firmly maintained a vote share of more than 73 percent of the total supplementary legislative election (Lee, 2011: 67).

The second trend was labor disputes that increased significantly, even before martial law was repealed. For example, from 1980 to 1983, labor disputes increased from 626 to 921 incidents. During the same period, the number of workers involved in these disputes increased by nearly double from 6,305 to 12,344 (Chiu, 2002: 488).

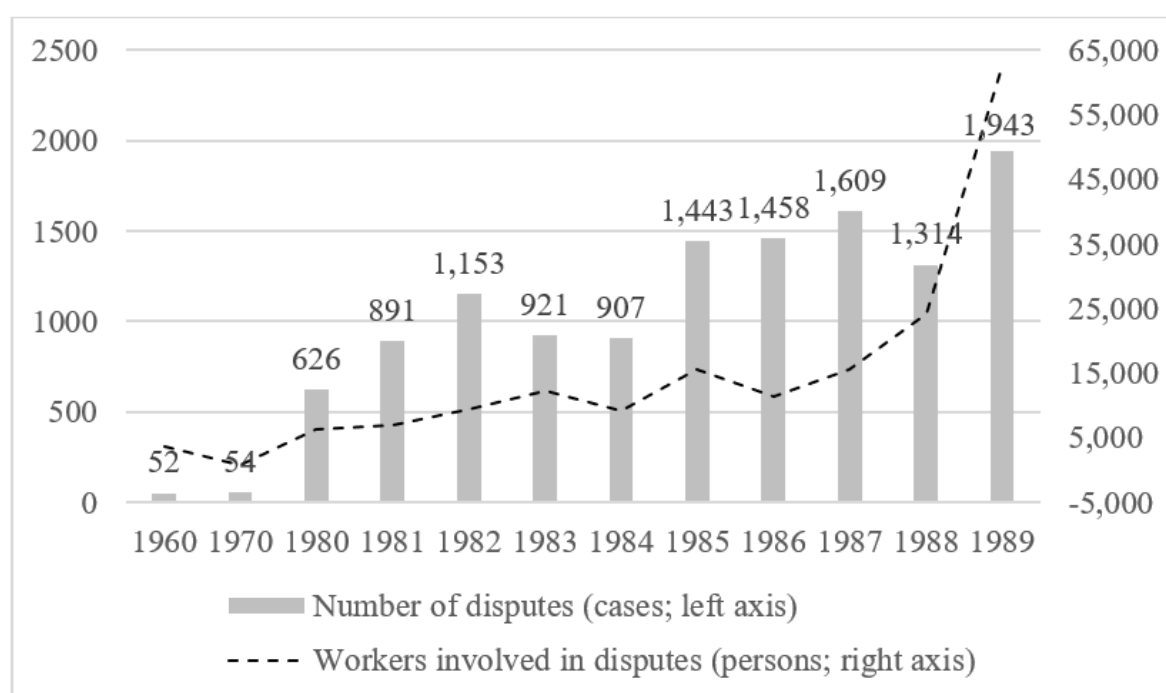
Indeed, the first and second trends were intertwined. Some active workers engaged in both democratic and labor movements. One interesting example was Yang Ching-chu, industrial worker, novelist, and politician. Yang worked for the China Petroleum Corporation (CPC) in 1960. Later, he published two important novels named *Factory Workers* (1975) and *Factory Girls* (1978). The latter was a collection of eight short stories. The novels presented facts and Yang's perspectives of the bad conditions in factories (Fan, 1997: 33). In 1978 he obtained a candidacy of the supplementary legislative election representing worker constituents, but the election was suspended (Ho, 2003: 118). Yang then took part in the democratic movement called *Dangwai*.

The labor faction of the *Dangwai* movement also successfully formed the Taiwan Labor Front (TLF)²⁰⁵ in 1984 for the promotion of labor rights and independent unions, together with democratization (Lee, 2011: 62). Simultaneously, President Chiang Ching-kuo became ill and could not rule the government in his usual close way. Indeed, the strong man gradually vanished. These factors led to more open-access politics and relaxed labor controls, *even before* 1987, when the KMT terminated martial law. It released social forces to voice their agenda and grievances. For example, the number of labor disputes increased sharply from 907 incidents in 1984 to 1,443 incidents in 1985 (**Figure 6.2**).

²⁰⁵ The TLF was supported by the radical New Tide faction (*Xinchaoliu xi*) in the Democratic Progressive Party (DPP) (Wang, 2010: 62).

After 1986 the labor movements²⁰⁶ maintained the momentum. As can be seen in **Figure 6.2**, the total number of workers involved in disputes increased from 11,307 persons in 1986 to 62,391 persons in 1989. During the same period, the number of disputes increased from around 1,458 to 1,943 occurrences. There were strikes in companies such as the Wen Mei Corporation, the Ford Lio-Ho Motor Company, China Petroleum, Taiwan Power, Nestle, the Far East Textile Company, and the Miaoli Bus Corporation (Lee, 2011: 68). In total, 29 percent of these disputes occurred in the transportation sector, 14 percent in SOEs, and 14 percent in declining sectors such as textiles (Chiu, 2002: 479).

Figure 6.2: Labor management disputes, Taiwan, 1960-1989



Source: Chiu (2002: 488)

²⁰⁶ They were, for example, the Kaohsiung Union Cadres Society, the Brotherhood of Trade Unions in Tao-Chu-Miao Area, the Federation of Independent Unions, and The Alliance of Unions at Taoyuan Airport (Chiu, 2011: 63).

Unlike South Korea, the Taiwanese state has come to mediate class conflict, and petty bargaining has leveled up welfare benefits since the 1970s. Therefore, Taiwanese labor actions did not involve wage issues alone. As illustrated in **Table 6.1**, disputes related to labor contracts (i.e., labor dismissals and wrongful severance) increased from 26 percent in 1981 to 37 percent in 1989. Still, wage issues involved a significant ratio, approximately 25 percent in 1989. Chu (1996: 502) also emphasized that a “claim for allowance” was very important because of labor disputes between 1986 and 1989.²⁰⁷ However, this wage issue decreased significantly after 1989.

Table 6.1: Labor disputes (excluding strikes), participants, and causes of the disputes in Taiwan, 1981–1989

Year	No. of disputes (cases)	Labor contract		Wage		Workers involved (people)
		(cases)	(% total disputes)	(cases)	(% total disputes)	
1981	891	229	26%	263	30%	6,903
1984	907	205	23%	187	21%	10,761
1985	1,443	438	30%	248	17%	16,517
1987	1,609	313	19%	194	12%	15,654
1988	1,314	278	21%	208	16%	24,237
1989	1,943	710	37%	489	25%	62,391

Source: Modified from Chen et.al. (2003: 323)

²⁰⁷ “According to a study of newspaper reports between 1988 and 1989, of the 104 objectives sought in a total of 88 labor actions, 45 (43.26%) were demands for increases in year-end bonuses, while a further 18 (17.31%) were demands for wage increase” (Chu, 1996: 502)

Looking at the details of important cases, three incidents should be illustrated, the first of which is the Taoyuan Transportation Company Strike in 1988. In this case, workers mutually requested increasing year-end bonuses. This movement gained support from more than thirty independent unions outside the company. After five days of paralyzed transportation, the company and the union reached an agreement allowing a 20 percent increase in the bonus. In the same year, another strike took place at the Miaoli Transportation Company. This time, the state (i.e., The Provincial Transportation Department and the police) and more than thirty-two transportation companies had a consensus to break the movement (Chu, 1996: 503).

The third climatic event was the Far Eastern Chemical Fiber Company Strike, staged at Hsinpu in 1989, which began with a simple story of unfair dismissal. The company transferred an accountant, who worked for the company union, to another branch and then fired him when he failed to report for duty. The union intervened and called for a general meeting. The county government then intervened in the meeting, ruling that it was inappropriate. After union leaders neglected the county judgment, they were fired. Other unionists disagreed with these state-business responses and declared strikes. Approximately sixty independent unions around Taiwan came to join the movement at Hsinpu to show their solidarity (p. 504).²⁰⁸

Interestingly, under these formal movements of workers, informal networks of union leaders also played a crucial role in labor movements. For example, 13 independent unions from Taoyuan, Hsinchu, and Miaoli jointly established the *Tao-Chu-Miao*²⁰⁹ Brotherhood Association in 1987 (Gray, 2015: 97). The leaders of these unions under the association “exchanged documents known as *xiondi tie* (brothers’ memorandum), which have been used traditionally to specify the rights and obligations of sworn brothers” (Chu, 1996: 505).

²⁰⁸ However, the government sent riot police to control the strike. The court also judged that the strike was illegal. Finally, after 11 days of contestation, the strike was dissolved.

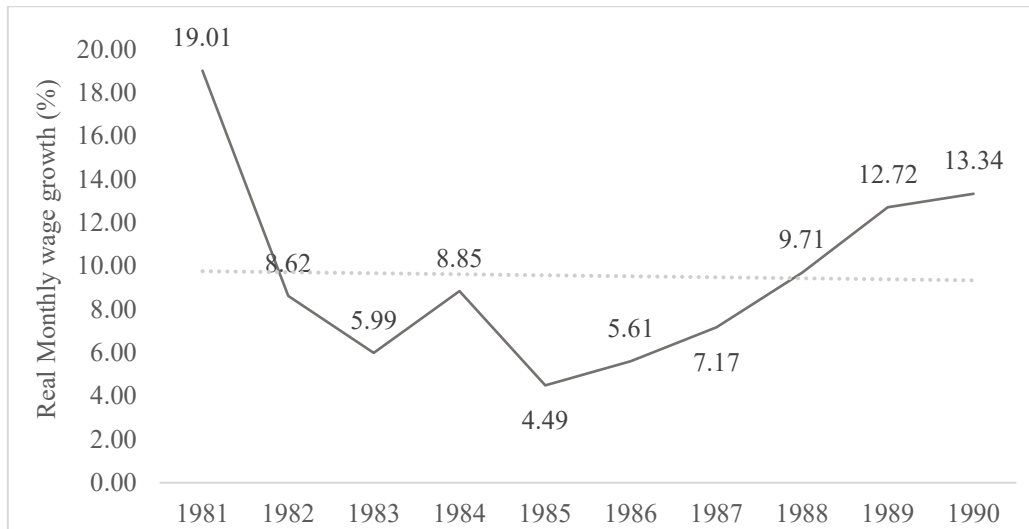
²⁰⁹ An abbreviation of the Taoyuan, Hsinchu, and Miaoli areas.

Therefore, when one of the circles encountered threats, other members quickly mobilized support, as examined in the above three examples in Taoyuan, Hsinpu, and Miaoli.

The Survey of Workers' Opinions on Work and Employment Relations in 1987 reported that only 25 percent of participants joined unions because the unions could help them. The proportion increased to 63 percent of participants in 1990 (Chiu, 2002: 485). All indicators regarding the labor unions also improved between 1986 and 1990. The number of union members increased from 656,789 to 699,372 persons, which pushed the unionization rate from 28.6 percent to its peak at 31.3 percent. Similarly, the numbers of industrial unions increased from 1,201 to 1,354 organizations, of which 61.1 percent made a collective demand from employers, with an 80.6 percent success rate (p. 483, 486).

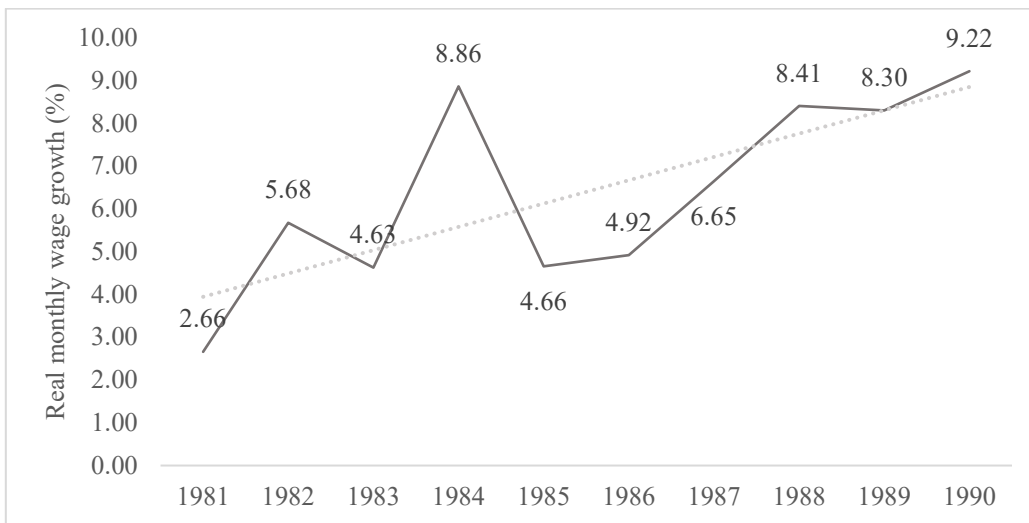
Relationships among indexes of disputes, unionization, and earnings were closely connected. During the second half of the 1980s, the number of involved workers per dispute correlated with percentage changes in earnings of around 0.814. The number of disputes also correlated with the earning index of around 0.69. And the unionization rate correlated with the earnings index of 0.623, revealing that the labor movement was preliminarily related to higher earnings. As illustrated in **Figure 6.3**, the percentage changes of nominal wages improved from 4.49 percent in 1985 to 13.34 percent per year in 1990. During the same period, real wage growth also increased from 4.66 percent to 9.22 percent (**Figure 6.4**).

Figure 6.3: Nominal monthly wage growth (%), Taiwan, 1981-1990



Source: Calculated by author based on National Statistics of Taiwan (accessed on March 14, 2019)

Figure 6.4: Real monthly wage growth (%), Taiwan, 1981-1990



Source: Calculated by author based on National Statistics of Taiwan (accessed on March 14, 2019)

The real minimum wage growth also remained at more than 4 percent throughout the 1980s (**Table 6.2**). One might argue that the wages were pulled up by the higher demand for skilled labor in the 1980s. However, the data demonstrated the opposite. Chang (2003) studied the disparity among wages between the 1970s and 1990s and found that unskilled workers received wage increase at a higher pace than skilled workers. As illustrated in **Figure 6.5**, the wage gap between skilled and unskilled workers was reduced from 1.87 in 1986 to 1.56 in 1995, around a 16.5 percent decline.²¹⁰ These stimulated employers to hire more skilled workers and formulate the basic conditions for the development of high-tech industries.

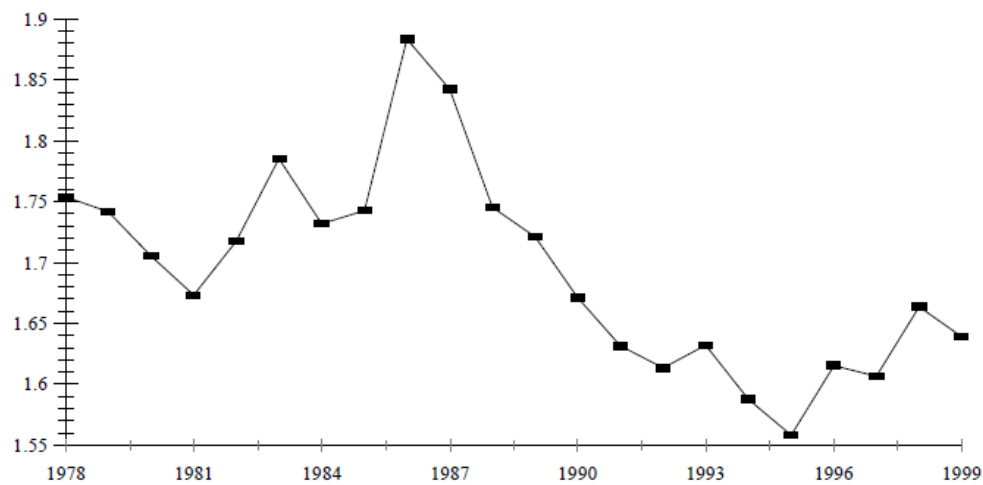
Table 6.2: Provisional Measures on the Minimum Wage, Taiwan, 1980-1989

Year	Minimum wages (NT\$)		Compound annual growth rate (CAGR)	Average real minimum wage growth
	per month	per day		
1983	5,700	190	19.98%	17.36%
1984	6,150	205	7.89%	7.91%
1986	6,900	230	5.92%	5.84%
1988	8,130	271	8.55%	8.01%
1989	8,820	294	8.49%	4.07%
1990	9,750	325	10.54%	6.43%

Source: Calculated by author based on data from the Ministry of Labor of Taiwan (accessed May 2, 2021)

²¹⁰ The result did not change even if the author modified the meaning of skilled labor from “college and above” to “high school and above.”

Figure 6.5: Wage gap between skilled and unskilled labor, Taiwan, 1978-1999



Source: Reprinted from Chang (2003: 29)

6.2 State-Business Adjustments after 1980

The higher labor cost in the 1980s strengthened the momentum for hi-tech-sector development, initiated in the previous decade. This section portrays the transformation of state policies and capitalist adjustment, respectively.

Economic Liberalization and Technology Policies in the 1980s

The government quantitatively expanded its spending on research and development (R&D) from 58.2 percent of total public R&D expenditure in 1982 to 68.3 percent in 1984. This effort lifted the percentage of R&D up from 0.71 percent of GDP in 1980 to 0.95 percent in 1984 (Hsueh et al., 2001: 64). The increasing trend of government support for R&D also lured the private sector to jointly invest in applied technologies. From the mid-1980s, the private sector followed suit to invest more heavily in R&D (to be discussed in the next section). In order to

maintain the momentum of private investment, particularly in technology-related activities, the government also implemented two other sets of policies: liberalization and investment on science and technology.

First, to force capitalists to adjust, in 1983 President Chiang Ching-kuo made a statement endorsing **liberal economic policies** to the sixth Financial and Economic Heads Colloquium. In 1984 Yu Kuo-Hua, who had just become premier, announced that liberalization was the core agenda of the government (p. 71). Important technocrats were assigned to study the possible choices of implementation. Liu Tai-Ying, for instance, was working on trade liberalization. Hou Chai-Chu, Pan Chih-Chi, and Liang Kuo-Shu were trying to liberalize investment, finance, and the exchange rate, respectively (p. 72). In 1986 five famous economists, namely, S.C. Tsiang, Wang Tso-Yung, John Fei, Anthony Koo, and Yu Tsong-Hsien, presented a concrete proposal to promote liberalization.

Indeed, the policy was not wholesale liberalization; rather, it was based on private sector's performance. For example, in the early 1980s, the government granted import bans to help producers of video-cassette recorders (VCRs). However, after 18 months of slow improvement, the government eliminated the barriers and invited a Japanese company, Sony, to form a joint venture with locals (Wade, 1990: 130–33). As a result, the policy did not automatically help to upgrade strategic industries; however, it imposed higher costs on sluggishness and rather induced learning effort.

After the government reduced trade and investment barriers, foreign direct investment (FDI) increased continually. As illustrated in **Table 6.3**, the numbers of registered FDI that exempted overseas Chinese increased 4 times from 676 cases between 1971 and 1980 to 2,322 cases between 1981 and 1990. During the same period, the expansion of FDI was around sevenfold in terms of value. In 1991, a single year, the total value of FDI was higher than in

the whole decade of the 1970s, which meant that the value of investment per case improved markedly. This phenomenon, as a consequence of liberalization, was spectacular because the higher FDI was accompanied by higher economies of scale of production and possibility of joint development in particular technologies.

Table 6.3: Approved inward and outward investment in Taiwan, 1960–1991, unit = 1,000 USD

	1961–1970		1971–1980		1981–1990		1991	
	Cases	Value	Cases	Value	Cases	Value	Cases	Value
Investment by overseas Chinese	643	153,711	856	801,671	713	989,093	65	219,462
Foreign direct investment (FDI)	559	371,002	676	1,357,502	2322	9,544,123	324	1,558,957
Total inward investment	1,202	524,713	1,532	2,159,173	3035	10,533,216	389	1,778,419
Total outward investment	38	8,015	114	93,250	720	2,965,146	364	1,656,030

Source: Chen and Sewell (1996: 771)

Second, the government progressively created **science and technology policies**. The first and foremost scheme was a public–private consortium for R&D. The Taiwanese government established the so-called Public Research Institutes (PRIs) and created spin-off companies. In the 1980s the government (such as the public-funded Industrial Technology Research Institute) successfully caught up with the basic technologies and transferred the applied knowledge, as well as human resources, to private enterprises. For instance, the government transferred 4 Kbit DRAM technologies and approximately 180 trained technicians to the private firm named UMC. In 1985 the government also established the Common Design

Center (CDC) to coordinate all parties related to the technical design of semiconductors (Chen and Sewell, 1996: 773).

The second scheme²¹¹ was a grant for product and process innovation, which was critical because Taiwan was SME-based economy. These small firms generally did not have enough cumulative capital and profit to bear the risks of R&D investment such as technological incompatibility or failed experiments. Moreover, even among large enterprises, profit yields were low during the early stages of R&D; therefore, a grant as a learning rent was preferred. This was used primarily in the 1980s. It became significant in 1991, when the Program for Leading Product Development matured and delivered results (Patarapong and Liu, 2019: 129). Almost 800 out of 1,600 submissions were approved and half of the granted projects were allocated to SMEs. Furthermore, every NT\$ that arranged projects induced 10 NT\$ for R&D, 21 NT\$ for production investment, and 42 NT\$ for sales. In terms of innovation, each project created 3.7 patents and 2.9 derivative products (p. 130).

Another important scheme was a loan facilitated by the SME Credit Guarantee Fund (SMEG), the aim of which was to support technology-enhancing activities in private firms such as the purchase of automation and computers, the installation of energy-saving devices, and the promotion of R&D (p. 132).

The fourth scheme was equity financing (venture capital) designed to encourage potential companies to increase their production scale in the expansion stage. Many organizations were established from the 1980s for this purpose. The Regulation Governing Venture Capital Business Management, for instance, was founded in 1983. In 1994 the government expanded the coverage of the Development Fund, designed to direct supporting equity, into technology-related firms. The new fund was called “the SME Development Fund.”

²¹¹ Patarapong and Liu (2019) portrayed the second, third, and fourth policies, so in this part I shall summarize them briefly.

These schemes had a common characteristic, namely, that the government tried to enhance private contributions investing in R&D. In other words, together with the above liberalization policy, the government changed its style of intervention from “direct-to-market” to an indirect one supporting private firms’ innovation, particularly SMEs.²¹²

Finally, there were hi-tech export-processing zones. While the government created export-processing zones (EPZs) from 1965, the new EPZs were established in 1980, focused on high-technology productions. The Hsinchu Science-based Industrial Park was initially operated in 1981 by 17 companies with paid-in capital of only 18 million USD. However, the number of working plants and capital accelerated in the next decade (Hsueh et al., 2001: 61–2).

Capitalists’ Adjustment in the 1980s and 1990s

Capitalists in the mid-1980s took changes of the labor movement and state policies into their consideration. On the one hand, labor disputes increased substantially after 1985, raising wage growth rates from around 4 percent a year in 1985 to 14 percent a year in 1990. On the other hand, the government maintained high interest rates and implemented more liberal schemes. The government also increased support in higher education, in-plant training, and public-fund research institutes. These factors had eventually induced capitalists to pursue three strategies in response: (1) reorganize their own industries; (2) upgrade production toward becoming more technology-intensive; and (3) diversify their businesses to new emerging industries.

²¹² In the sense that the government incrementally retreated from direct intervention, such as tightly controlling the exchange rate or import–export licenses, which intensifies the competition and market mechanism. At the same time, the government also supported local companies to learn and adopt technologies to compete in the market.

In the textile industry, capitalists began relocating textile production to other Southeast Asian countries, where labor costs were relatively low. Instantaneously, domestic producers focused on the more technology-intensive tasks in the midstream sector, such as manmade and synthetic fibers. As such, exported products slowly changed from final goods to intermediate goods and services in the industry. The amount of exported fabrics, for instance, increased from 36.7 percent in 1989 to 51.64 percent of total exports in 1993 (Tu, 2001a: 217). The major destinations of these exported fabrics were Hong Kong, Singapore, and the Philippines,²¹³ where the fabrics were utilized to make final products or re-exported to other countries (p. 216).

Private enterprises also recognized the importance of innovation. R&D expenditure in the textile industry increased from 577 million USD in 1985 to 1,675 million USD in 1990. Other indicators such as R&D to sales, R&D personnel, labor productivity, and capital intensity²¹⁴ also increased during this period. In particular, capital intensity was outperformed in the sense that it increased more than average in the manufacturing industry, from 668 NT\$/worker in 1985 to 1,098 NT\$/worker in 1990 (p. 222). While capitalists in the industry made these efforts, they could only maintain the nominal value of exports at around 10–12 million NT\$ per year between 1989 and 1993. In the context of the rapid expansion of other emerging industries, specifically electronics, the share of textiles in Taiwanese exports decreased from around 20.4 percent in 1985 to 14.4 percent of total exports in 1993 (p. 198).

In the petrochemical industry, like the textile industry, increasing wages (as well as appreciation of the NT\$) in the 1980s pushed the downstream sectors of the petrochemical industry to move to other countries such as Mainland China and Southeast Asia.²¹⁵ Therefore,

²¹³ These three countries consumed 32.17 percent of Taiwanese exported textiles in 1990 (the major products were fabrics). The share increased to 40.25 percent in 1993.

²¹⁴ Measured by net fixed capital per number of employees (thousand NT\$/number of people). In the manufacturing industry, capital intensity rose from 505 NT\$/worker in 1985 to 680 NT\$/worker in 1990.

²¹⁵ For instance, the outward investment of the petrochemical industry increased from 2,402,000 USD a year in 1974–9 to 8,148,000 USD a year in 1980–82 (Tu, 2001b: 238).

domestic demand for intermediate products declined. Petrochemical industrialists responded to this problem by controlling excessive competition, integrating their companies, and exporting the surplus. In 1993 upstream²¹⁶ and midstream²¹⁷ products, which had not been exported since 1982, rapidly exploded onto the global market. The share of butadiene, for example, jumped from zero in 1992 to 55.3 percent of total output in 1993; and the export of xylene increased from zero to 81.7 percent during the same period (Tu, 2001b: 257).

The petrochemical industrialists also shifted their interests from quantitative expansion to qualitative issues. R&D expenditure increased from 0.37 percent of sales value in 1985 to 1.08 percent in 1992, which surpassed the average in the manufacturing industry. The fixed capital intensity increased from 542.2 million NT\$ per thousand workers to 1,674.83 million NT\$ per thousand workers in 1994. The aim of these R&D and capital investments was to produce special-purpose plastics and intermediate materials.

These efforts, together with liberalization policies, helped the industry to maintain investment and production growth rates in the 1990s. Total inward investment increased more than threefold between 1983–6 and 1987–94 (p. 238). The upstream and midstream growth rate increased from 3.1 percent per year in 1990 to 17.3 percent in 1994. Furthermore, downstream, the growth rate of compound resins and plastics soared from 9.3 percent per year in 1990 to 31.2 percent in 1994 (p. 248). Although petrochemical industrialists tried to upgrade production, many uncertainties, such as fluctuation of petroleum prices and higher costs of capital and labor, encouraged them to diversify their investment into other, newly emerging industries, namely, electronics.

In electronics-related industries, in the 1980s, the semiconductor industry was initiated.

²¹⁶ They are ethylene, propylene, butadiene, benzene, and xylene.

²¹⁷ The midstream also consisted of this trend. For instance, vinyl chloride monomer (VCM) exported around 29 percent of its production in 1993, even though it had never been exported before.

In 1984 the United Microelectronics Corporation (UMC), the spin-off company supported by a public-funded research institute named ERSO, began to establish an in-house research department to develop its own DRAM technology. Its mission was to improve DRAM from 16 Kbit to 64 Kbit and 256 Kbit, respectively. In 1985 UMC also imported technologies related to IC chips from US firm TRW. Then, UMC utilized the technologies for telecommunication applications. All of these preliminary efforts were to assemble IC chips, creating electronic goods and also DRAM. In 1987 the government also founded the second domestic firm producing integrated circuits (ICs), named the Taiwan Semiconductor Manufacturing Company (TSMC) (Chen and Sewell, 1996: 773).

At the same time, two important companies were also founded, namely, Winbond and Hualon,²¹⁸ which could increase technological capability because the state support provided them with ready-trained personnel. For instance, Winbond hired 100 workers from ERSO. On the other hand, they acquired and imported technologies from other potential firms. For instance, Hualon jointly formed an alliance to research and develop products with US-based company Seeq Technology.

In the mid-1980s technical design houses focused on circuit design (upstream) were established, for example, Syntek and Holtek. Unlike capital-intensive plants for fabrication, the design house required human-capital intensity. Researchers who successfully designed the IC and fabricated wafers needed not only postgraduate degrees but also experience and tacit knowledge of making the product. These design houses also expanded rapidly because many fabricating plants such as TSMC employed a “manufacturing only” policy and left design-

²¹⁸ The first one could produce a complementary metal-oxide-semiconductor (CMOS) memory, as well as an application-specific integrated circuit (ASIC). The second produced a static random-access memory (SRAM) and an erasable programmable read-only memory (EPROM). These products were types of IC and IC memory.

related activities to design-specific companies.²¹⁹ In 1993 some of these design houses flourished enough to invest in and integrate with midstream businesses by buying fabrication plants. One of the main motivations was to control and protect their knowledge and technical design, which was usually leaked to firms in the fabrication sector (p. 774).

By 1993, 55 of 90 indigenous firms in the industry were design houses. Only 20, 12, 2, and 1 were assembling semiconductor devices, fabricating wafers, producing masks, and testing wafers, respectively. Technical design also gained more proportionate value of the sector, from 7.1 percent in 1988 to 13.7 percent of total value in 1992 (p. 775). Moreover, comparing all of the sectors in the semiconductor supply chain, internationally, the design sector was “Taiwan’s best performer” (p. 780). This result was completely different to South Korea, where industrialists in the industry focused more on fabrication. I shall argue that the root of this difference related to strategies that the labor force used for mobilization and wage patterns in the 1980s (to be discussed in the next section).

Overtime, Taiwanese capitalists invested more in R&D and tried to upgrade production to more sophisticated and higher technologies. Total expenditure in R&D multiplied around sevenfold from 10,562 million NT\$ in 1980 to 71,548 million NT\$ in 1990. The private share in R&D increased from 41.8 percent of total expenditure in 1982 to 54.2 percent in 1990 (Hsueh et al., 2001: 64). In the semiconductor industry the rates of progress in submicron-process technologies generated by the private sector could surpass progress in public research institutes in the 1990s (Chen and Sewell, 1996: 776). The DRAM patent continually increased from a single case in 1990 to 144 cases in 1999 (Lee and Yoon, 2010: 557). As a result, Taiwan was able to qualitatively transform its economy in the 1980s and upgrade its mode of production

²¹⁹ In the case of Taiwan, even LEs in the newly emerged sector tried to deepen their supply chains and did not intend to internalize all activities into their own conglomerates. The CDC also actively supported the SMEs that focused on the technical design of the semiconductor industry.

toward being high-technology in the 1990s. Finally, in the mid-1990s, Taiwan successfully reached the status of a high-income country.

6.3 The Evolution of Labor Institutions from the 1960s to the 2000s

This section will illustrate the dynamics of Taiwan's labor institutions, from the bad equilibrium, the so-called "hierarchical labor market economy," to the good type, between 1960 and 2000. There are four core labor institutions – wage regime, education system, welfare system, and labor regulations – which progressed sequentially. Under bad institutions, labor mobilized to demand better working conditions. These efforts demanded only preferred wage rates and welfare benefits; however, these were short-term demands. They could not guarantee that, for example, in the next year capitalists would allow for more wages. Therefore, laborers needed a legal framework that supported their wage bargaining and welfare benefits. Also, capitalists wanted mechanisms to ensure that they could survive through the enduring economic conditions (i.e., high wages and high international competition). These triggered an adjustment of labor institutions in the long run.

Labor Movements from the Long-term Perspective: 1960–2000

We have already discussed two waves of labor movement in Taiwan. The first wave happened in the 1970s, when petty bargaining existed and autonomous factions were initially formed within SOE unions. The second wave of labor movements existed in the mid-1980s with two clear trends, that is: (1) autonomous factions in the unions effectively penetrated the union management; and (2) labor movements expanded beyond factory-based actions and also

engaged in democratic movements. It was common to see campaigns bridging labor movements and social change, for example:

“‘Workers Support Trade Unions so that Trade Unions can Transform Society!’ and ‘The Trade Union Movement is the Vanguard of Social Reforms!’” (Chiu, 2011: 63).

In 1989 capitalists were alerted by these labor movements and put pressure on Lee Teng-Hui, the new president and successor of Chiang Ching-Kuo. Business associations, led by the largest manufacturing company of the time, the Formosa Plastic Group, publicly criticized the government for lacking the ability to control social conflict. The association even announced the postponement of investment until the government demonstrated signs of controlling social turmoil. The government responded by tightening labor controls. For example, between 1989 and 1993, approximately 300 active union members were illegally fired and many attempts to mobilize the unions clashed (Chiu, 2011: 63).

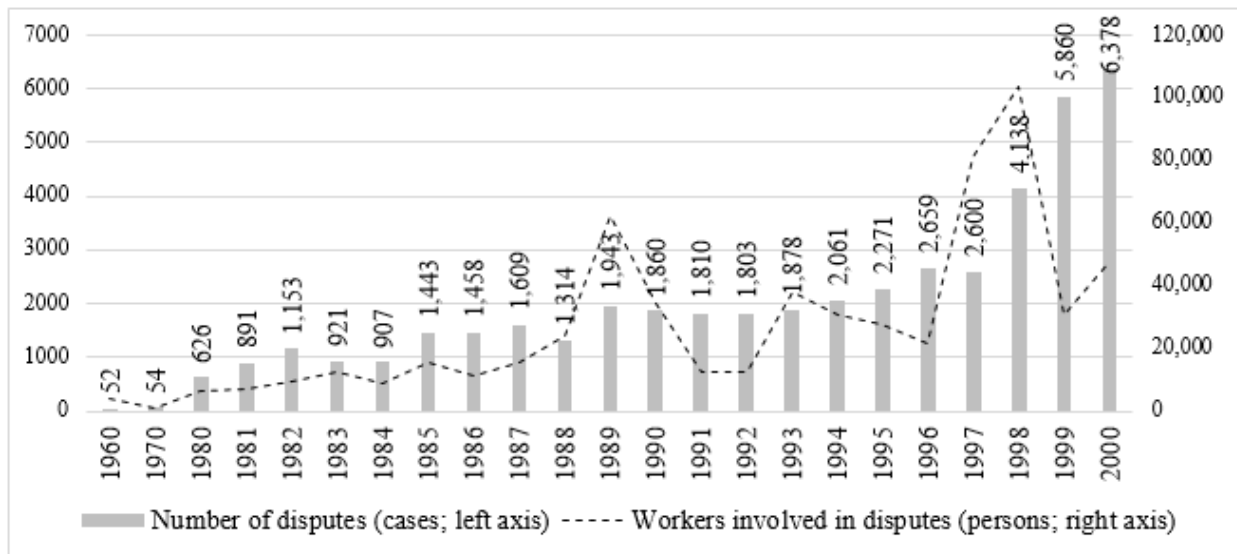
These repressive measures, however, could not control the released forces of active unionists. After 1990 labor movements, measured by labor disputes and their participants, could be maintained²²⁰ under repressive conditions until they abruptly increased after the 1997 economic crisis.²²¹ As illustrated in **Figure 6.6**, the number of disputes rose slightly from 1,800 incidents in 1990 to 2,271 incidents in 1995. Then the number jumped from around 2,600 incidents in 1996 to 4,138 and 6,378 in 1998 and 2000, respectively. During this period, the

²²⁰ An example of an important strike during this period was the Keelung Transportation Company Strike in 1992. In this incident, even the spouses and children of the drivers participated in the demonstration, including sit-ins and other protest activities (Chu, 1996: 506).

²²¹ In the 1990s, especially after the 1997 crisis, many unions in SOEs mobilized to oppose privatization. They were the Land Bank, the China Oil Company, and the Chunghwa Telecommunication Company (Wang, 2010: 65).

labor organizations were not only bargaining for short-term benefits but also strategically trying to revise the existing labor laws (Ho, 2006: 113). The 1990s became the decade of institutional transformation.

Figure 6.6: Long-term trend of labor disputes and participants, Taiwan, 1960-2000



Source: Data from Chiu (2002: 488)²²²

Wage Regime: High Wage and High Collaboration

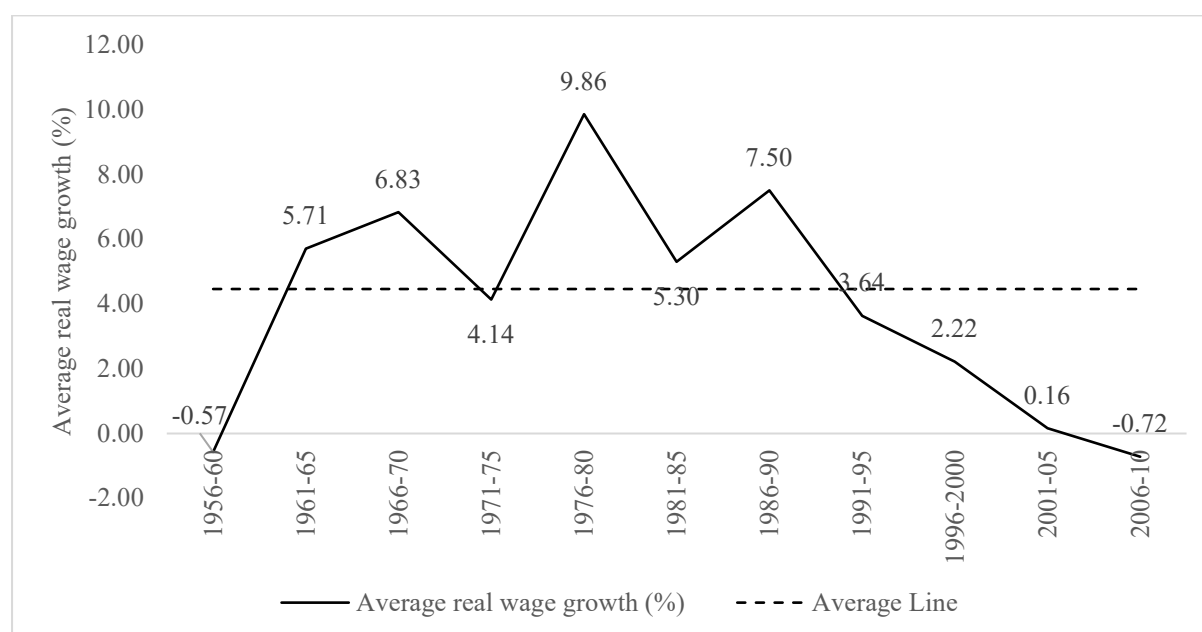
In Taiwan, because of petty bargaining and the mediating stance of the government, wages increased continually. In the 1970s, the real wage growth was accounting for around 4.14 percent and 9.86 percent per year during the first and the second half of the decade, respectively. In the 1980s the real growth rate was 6.4 percent, on average (**Figure 6.6**). At the same time, the government implemented the minimum wage law from 1956, three decades before South Korea enacted the minimum wage law (1986)²²³ (**Table 6.4**). This reflected a high degree of

²²² For data of labor disputes and unionization rates between 2001 and 2011, see Gray (2015: 99).

²²³ Moreover, Taiwanese minimum wage rates were very high in the 1970s–90s. Before 1997, Taiwan’s minimum wage was higher than Korea, Spain, Greece, and Portugal (Ngerng, accessed February 24, 2020).

labor concerns from the Taiwanese government's perspective. Based on this two-digit wage growth and high welfare benefits (discussed later), the agendas of labor movements shifted toward labor contracts and employment in the 1990s.

Figure 6.7: Average real monthly wage growth rates, Taiwan, 1961-2000



Source: National Statistics of Taiwan (accessed March 14, 2019)

Table 6.4: Provisional Measures on the Minimum Wage, Taiwan, 1991-2011

Year	Minimum wages (NT\$)			Compound annual growth rate (CAGR)	Average real minimum wage growth
	per month	per day	per hour		
1991	11,040	368		13.23%	9.61%
1992	12,365	412	51.5	12%	7.53%
1993	13,350	445	55.5	7.97%	5.02%

Year	Minimum wages (NT\$)			Compound annual growth rate (CAGR)	Average real minimum wage growth
	per month	per day	per hour		
1994	14,010	467	58.5	4.94%	0.84%
1995	14,880	496	62.0	6.21%	2.55%
1996	15,360	512	64.0	3.23%	0.15%
1997	15,840	528	66.0	3.13%	2.21%
2007	17,280		95.0	0.87%	0.01%
2011	17,880		98.0	0.85%	-0.39%

Source: Ministry of Labor Republic of China (Taiwan) (accessed February 24, 2020)

In **Table 6.5** we can see that labor movements based their agendas on issues related to labor contracts and employments, which accounted for around half of all disputes, more than wage issues. This trend was reinforced by the 1997 crisis (Wang, 2010: 66). In the 1990s capitalists responded by paying lower wage growth (**Figure 6.5**) and increasing labor absorption. In practice, this means Taiwanese firms did not easily dispose of workers and hire new ones. The job tenure of Taiwanese workers was, on average, 5.6 years. This number increased to approximately 8.2 years in undereducated workers²²⁴ (Hung, 2008: 131), which was higher than among workers in South Korea (4.7–5.1 years in 1990) (Hwang, 2006: 9) and Hong Kong (4.2 years in 1991–2) (Chow, 1994: 6).²²⁵

²²⁴ This term referred to those who had schooling years lower than the required education given their occupation (Hung, 2008: 125). So, these workers did not want to leave their current job to find a new job.

²²⁵ Another measurement was the labor turnover rate. The average labor turnover rate in the Taiwanese electronics industry in the 1980s was around 11 percent (San, 1990: 28). Compared to the USA and even Germany, Taiwan's turnover rate was low. For example, the USA had an annual turnover rate of around 70 percent and Germany had 23 percent (Bellmann et al., 2011: 11–13). Indeed, these statistics were volatile, according to databases, calculations, and periods of time; however, the ordering pattern was clear; in other words, the USA always had a higher labor turnover rate than Germany.

Table 6.5: Labor disputes (exclude strikes), participants, and causes of the disputes in Taiwan, 1990-2000

Year	No. of disputes (cases)	Labor contract		Wage		Workers involved (people)
		(cases)	(% total disputes)	(cases)	(% total disputes)	
1990	1,860	788	42%	418	22%	34,089
1991	1,810	836	46%	528	29%	12,696
1992	1,803	848	47%	557	31%	12,394
1993	1,878	852	45%	548	29%	37,949
1994	2,061	931	45%	643	31%	30,890
1995	2,271	962	42%	761	34%	27,342
1996	2,659	1,271	48%	891	34%	21,654
1997	2,600	1,172	45%	737	28%	810,004
1998	4,138	1,954	47%	1,321	32%	103,568
1999	5,860	2,978	51%	1,953	33%	30,440
2000	8,026	3,921	49%	3,127	39%	56,643

Source: Modified from Chen et.al. (2003: 323)

This time, capitalists encountered two constraints. First, they needed to elevate skilled workers and technologies to avoid competing cheap products coming from newly industrialized countries. Second, they could not fully impose the South Korean-style flexible employment stimulating competition among workers because the Taiwanese unions were deeply concerned with employment-related issues. For this reason, they came up with the idea of *functional flexibility*, “where workers [were] required to perform a variety of tasks rather than a single

specific job”²²⁶ (Wang, 2001: 358). Besides, the incentives for learning in Taiwanese hi-tech sectors were less programmable (Chien et al., 2010: 2243). In other words, concrete procedures could not be specified but regularly defined by the outcomes of production.

In the 1990s, similar to South Korea, Taiwanese firms continually introduced performance-based payment into their labor management. However, this did not always lead to rivalry among individual workers. In contrast, it simultaneously enhanced collaboration among workers to solve production problems, so-called contextual performance. This was also supported by various conditions, for example, Confucianism culture, which emphasizes harmony and appropriate arrangements in interpersonal relations (p. 2235) and the compromise characteristics of unionists. In conclusion, in the 1990s, Taiwan’s wage regime developed into “a high wage and high collaboration manner.”

Education and Training System: Toward Vocational Trainings

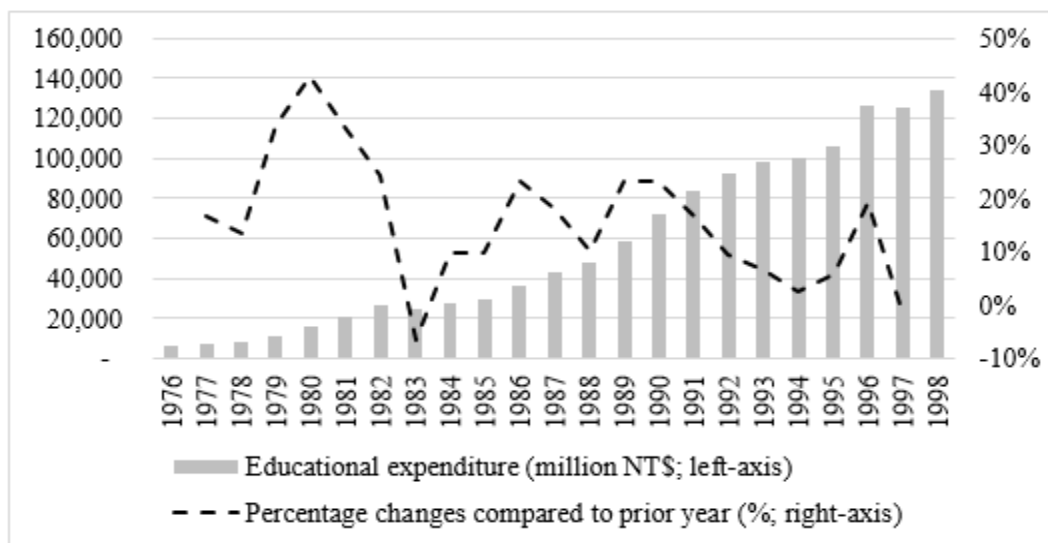
To accelerate production transformation, skilled workers and technicians were an important requirement. However, before we look at the detail of the education policies, some initial conditions surrounding the policy choices should be discussed here.

First, the majority of Taiwanese firms were SMEs, which lacked economies of scale for training skills; therefore, the government stepped in and played an important role in education and training systems (Ashton et al., 2002: 22). For example, the government raised spending for higher education by approximately 21 percent per year in the late 1970s, and 19 percent in the 1980s (**Figure 6.8**). While public expenditure on higher education increased

²²⁶ “Also, because of the high competitiveness of the [hi-tech] sector, full utilization of the labor force and therefore flexible working time is required” (Wang, 2001: 358). The state additionally announced the minimum wage “per day” and “per hour” in the 1990s. They were used to calculate payments for workers who worked flexibly in terms of times and tasks. This allowed Taiwanese firms to effectively manage their labor costs and productivity.

minimally from 0.95 percent of GNP in 1971 to 0.97 percent in 1981, the ratio improved rapidly from 0.97 percent to 1.32 percent between 1981 and 1982 (Wang, 2003: 279). The accessibility of people applying for higher education increased from 22,633 persons in 1972 to more than 30,000 in 1983 (p. 274).²²⁷

Figure 6.8: *Government expenditure on higher education, Taiwan, 1976-1998*



Source: Wang (2003: 280)

Second, Taiwanese labor movements were moderate and quick to compromise. These negotiable relations on the shop floor enabled Taiwanese firms to develop incremental improvements and incentivized them to hire vocational trained employees.²²⁸ The first and second conditions were intertwined. Because most Taiwanese firms were SMEs, they could

²²⁷ Overall, public expenditure on education increased straightforwardly from around 3 percent of GNP in 1974 to roughly 5.5 percent in 1982, except in 1979 when the oil crisis occurred (Cheng, 1992-3: 59). In 1983 the government began the Program for Strengthening the Education, Training, and Recruitment of High-level Science and Technology Personnel (Hsueh et al., 2001: 60).

²²⁸ As discussed above, Taiwanese firms adopted the functional flexibility approach of labor management so that workers needed multiple skills for multi-tasking. However, labor unions continually fought to maintain employment; therefore, the turnover rate was low and the firm-specific skills were preferable. As a result, I hypothesize that firms aimed to train the so-called “firm-specific multi-tasking skills” instead of general skills. However, this issue will not be elaborated in this thesis.

not generate breakthrough technologies via laboratories so they had more incentives to preserve skilled workers to gradually improve their daily practices with blue-collar workers instead of highly educated researchers.

Between 1970 and 1980, technocrats such as K.T Li intentionally encouraged high-school applicants to enter the vocational track (Lauridsen, 2008: 450-51; Cheng, 1992-3: 61). The government also offered incentives such as tax concessions and types of subsidy for private enterprises to establish their own vocational schools. Private firms were also incentivized to follow this policy in order to reduce recruitment costs and turnover rate. As such, the proportion of students studying in vocational schools increased from 48 percent of total students in 1960 to 50 and 66 percent in 1970 and 1980, respectively (p. 62). Enrollment in junior colleges also expanded by nearly three times, from 55,301 persons in 1970 to 105,246 persons in 1980 (Wu et al., 1989: 126).

These two characteristics of education and training continued into the 1990s, especially in the leading economic sectors. For example, in the electronics industry, where more than 90 percent of operating firms were SMEs, the government established “public training institutes” (San, 1990: 27). This helped firms, even in SMEs, to facilitate training for workers. According to San (1990: 51), 33.83 percent of all firms in the electronics industry had conducted training. The ratios were 32.47, 37.19, 42.22, and 44.40 percent in the case of parts, consumer products, semiconductors, and computers, respectively. Moreover, 62.7 percent of trainees were non-managers and non-engineer workers (presumably vocationally trained blue-collar workers).²²⁹

²²⁹ Among Taiwanese firms, “on-the-job training is most frequently used” (Lin, 1996: 30).

Labor Regulations: Union Pluralism and Political Participations

From the late 1980s, there were four major groups of labor movement. First, there was the Taiwan Labor Front (TLF), which worked side-by-side with the Democratic Progressive Party (DPP). Second, there was The Association of Labor Right, which aligned itself with the Labor Party. Third, there was the Workers' Legislating Action Committee, which mobilized independently. Finally, there was the group of autonomous factions challenging the pro-KMT faction in the Chinese Federation of Labor (CFL) (Lee, 2011: 90). These movements had different characteristics. For example, some clearly acted against the KMT, but some could compromise, depending on the issues.

In the early 1990s workers in many local areas mutually established independent unions with the support of the opposition party, the DPP. While the KMT government declared that these newly established unions were illegal, the local governments led by DPP candidates (except Kaohsiung City and Miaoli County) gave them legal recognition and resources (**Table 6.6**). This DPP strategy was called "encircle the central from the local" (Ho, 2006: 118; Wang, 2010: 65). In 1999 these independent unions tightened collaboration by creating the Taiwan Confederation of Trade Union (TCTU).²³⁰ Under the existing Trade Union Law, the TCTU was illegal because the law allowed only one national labor organization. However, a DPP candidate in the 2000 presidential election, Chen Shui-Bian, campaigned to give legal recognition to the TCTU if he won the election.

²³⁰ The preparatory committee was formed in 1998 by the unions federation in eight counties/cities and six labor organizations, namely, Chunhwa Telecom Workers' Union (CTWU), Taiwan Petroleum Workers' Union, Taiwan Power Labor Union, Taiwan Railway Labor Union, Taiwan Motor Labor Union, and Public Sale Bureau Labor Union (Sarkar and Chang, 2010: 69).

Table 6.6: City/County federations of unions in Taiwan

City/county	Year of establishment	Numbers of unions	Numbers of members	Local government subsidies (NT\$)
Taipei County	1994	38	12,000	2,300,000
Tainan County	1995	35	10,000	600,000
Kaohsiung County	1996	39	10,000	700,000
Yilan County	1997	21	6,000	240,000
Taipei City	1997	49	47,000	410,000
Kaohsiung City	1997	36	45,000	820,000
Hsinchu County	1997	21	47,000	Amount unclear
Miaoli County	1998	13	7,893	100,000

Source: Modified from Huang (2002: 316), Ho (2006: 119), and Lee (2011: 126)

Chen won the election in 2000 and the DPP also gained significant votes from workers in the Legislative Yuan (Taiwanese Parliament) in 2001 (Lee, 2011: 91–2). After that there were many crucial changes in the labor movements. In the CFL, the autonomous faction gained morale and mobilized until it won the election for the CFL president. This forced the pro-KMT faction to break off and establish a new organization, the National Federation of Labor (NFL).²³¹ Now, we can see that there were at least three national labor organizations (Huang, 2002: 317), one of which was created by the pro-KMT group. In this case, not only the DPP but also the KMT had the incentive to support union pluralism. As such, in 2000 *the Labor Union Law* was amended for the first time in 25 years since 1975 to recognize union pluralism (Lee, 2011: 127).

²³¹ Other translations called it the R.O.C. National Labor Alliance (Wang, 2010: 68).

Welfare: Generous Benefits and High Protection

Beyond the minimum wage, training system, and collaboration rights, there were welfare benefits. The institutional evolution related to this issue could be portrayed by three events of legal revisions.

The Protective Act for Mass Redundancy of Employees

In the 1990s when labor movements significantly threatened the stability of the KMT government, the incumbent consciously adjusted labor policies. After hearing the labor demands, weighted on employment issues, the government announced *the Protective Measure for Mass Redundancy of Employees* in 1999, which established three important mechanisms. First, there were “employment indicators,” which collected necessary information (i.e., lay-off plans) from employers. Second, the government imposed *the Recognition Standards and Procedures for Termination of Enterprise* to guarantee that workers would be treated fairly regarding back pay, severance pay, and retirement pay. The last measure was a legal counsel service for workers whose labor rights were violated (Wang, 2010: 66).

These efforts showed that the KMT wanted to secure votes from workers; however, they could not save the KMT from its infamous image (i.e., malpractice and repressive policies). In 2000 the DPP defeated the KMT and assumed office. The new government proposed *the Employment Insurance Act* (2002) and promoted the status of the aforementioned Protective Measure (1999) to become *the Protective Act for Mass Redundancy of Employees* (2003) (Ho, 2006: 124). These mechanisms helped Taiwanese workers to access fair payment when laid off and, at the same time, increased the transaction costs of employers that were laying people off. As a result, Taiwan’s job tenure was higher than (and labor turnover rate lower than) its neighboring Northeast Asian nations (except Japan).

The Labor Standard Act

There was the amendment of *the Labor Standard Act* in 1996 and 2000.²³² This act, enacted in 1984, directly determined the working standards of laborers, such as weekly limits for working hours, but it covered only the manufacturing sector. In 1996, when labor movements gained political support, the labor–DPP alliance, led by the Bank Workers’ Union, jointly revised the law to expand the coverage of the act (Huang, 2002: 319). In 2000 the DPP assumed government and collaborated with labor organizations to propose the draft of the revised Labor Standard Act. The core issue was a reduction in working hours from 48 to 44 hours/week.

KMT representatives in Parliament rejected the proposal and proposed a new one, which reduced the limit of working hours from 44 hours/week to 84 hours/two weeks, which meant that employers had to reduce working hours to 42 hours/week, but they gained more flexibility to allocate these workloads over two weeks.²³³ The DPP planned to discard the KMT version of the proposal and enact its own version; however, various labor organizations mobilized in the name of “*The Coalition for 84 Work Hours*” to support the KMT proposal (Lee, 2011: 133) and criticized the DPP government.

At the time, the DPP was not the only political party to align its support with workers; the KMT also jumped on board. The DPP tried to secure support by getting the employers’ association (Chinese Confederation of Industries) and the unions (Chinese Federation of Labor) to sign an agreement, the first successful tripartite settlement in Taiwanese labor history, to

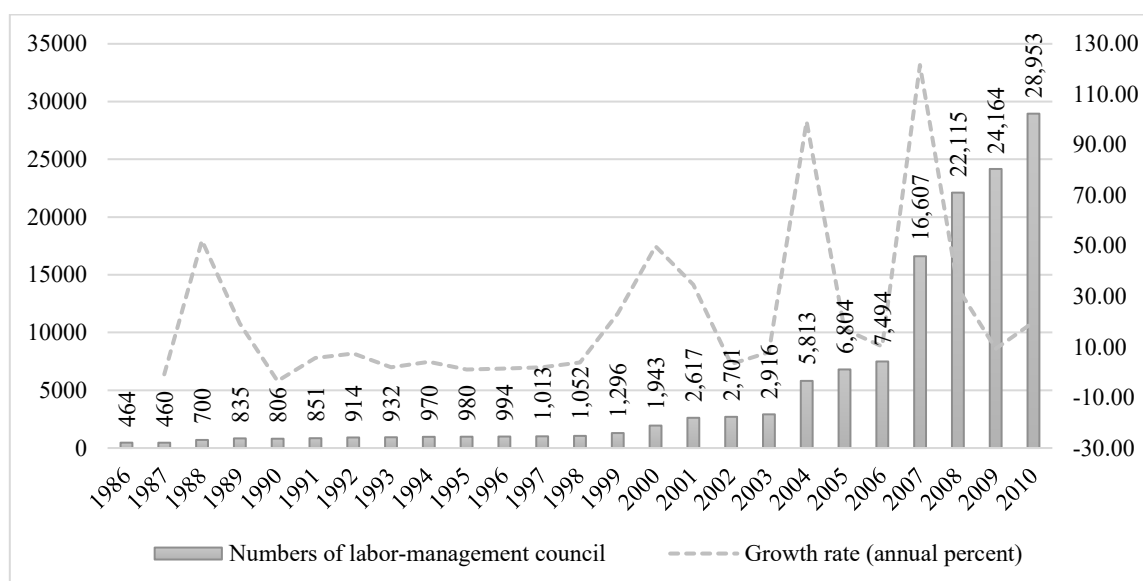
²³² Others were the Protection for Workers Incurring Occupational Accidents Act (2001) and the Gender Equality in Employment Act (2002) (Ho, 2006: 124); however, these are not covered in this thesis.

²³³ This strategy was called a “packaged deal,” which provided benefits to both workers and employers at the same time. When this proposal was criticized by many people concerned with the negative consequences for the economy, the Ministries of Economic Affairs and Finance offered a phasing-in strategy, meaning that the policy could be incrementally implemented by sequential reduction of the limit of working hours instead of a one-time reduction.

support the government bill. Finally, however, the Parliament, including DPP members, voted for the KMT bill (Huang, 2002: 320–21).²³⁴ After that, the average Taiwanese working time decreased from 46 to 41.5 hours/week, nearly touching the new limit (Lee, 2011: 104).

Another mechanism initiated by the original Labor Standard Act in 1984 (only in the public sector) was the labor-management council. The core function of this council was “to enable employers and employees to discuss various subjects related to the labor-management relations, to reach a resolution based on majority consent, and to improve working conditions” (Cheng, 2012: 112). This mechanism expanded to the private sector in the 1990s and was continually expanded from 914 firms in 1992 to 28,957 firms in 2010 (**Figure 6.9**).²³⁵

Figure 6.9: Numbers of labor-management council in Taiwan, 1986–2010



Source: Cheng (2012: 113)

²³⁴ This was not the end of the story because, after the bill was passed through Parliament, it encountered an issue of implementation. Both employers’ associations and labor unions marched to lobby the government and the KMT. After chaotic negotiations, in 2001 they reached a consensus that the 84-hour regulation must be implemented.

²³⁵ Among these firms, 95.89 percent wanted to continue the council (Cheng, 2012: 115), 82 percent supported the council because it helped both employers and employees to acquire knowledge of management affairs, and 80 percent believed that the council decreased conflicts and disputes (p. 116).

The Grand Legal Revision during the 2008 Crisis

While this crisis took place in the US, its negative consequences transferred via trade channels because the US was the third largest export destination of Taiwan after China and Hong Kong. At the time, the KMT successfully managed to win the election and return to government, which verified that democratic competition to satisfy voters (and workers) was possible for the KMT, so the party wanted to maintain policies maintaining the employment rate at an acceptable level. The KMT government then quickly amended *the Protective Act for Mass Redundancy of Employees* in 2008. This revision demanded that employers submit lay-off plans to the government 60 days prior to the action (Wang, 2010: 78).

In the same year, the government simultaneously amended *the Labor Standard Act* and *the Labor Insurance Act* ensuring job security for workers. Taiwan could stabilize unemployment rates at around 5.85 percent (Wang, 2010: 77–8). In the United States, the Congressional Budget Office forecast that the unemployment rate would increase modestly from 5.4 to 6.2 percent between 2008 and 2009 (Mishkin, 2010: 1); however, it exploded to exceed 10 percent by October 2009 (p. 10). In Europe, on average, unemployment rates increased from 7.5 percent in 2008 to more than 10 percent in 2010 (Statista, accessed March 4, 2020). These statistics showed that the Taiwanese economy was very able to absorb laborers and maintain the employment rate, even in a crisis situation.²³⁶

This evidence of legal reformation for labor welfare benefits shows that Taiwanese institutions protected job security²³⁷ and incrementally improved workers' conditions.

²³⁶ The government also endorsed labor rights by revising three other important acts: the Collective Bargaining Agreement Act (2008), the Settlement of Labor Disputes Law (2009), and the Labor Union Law (2010) (Wang, 2010: 54).

²³⁷ For movements against privatization as part of maintaining job security among SOE workers, see Lee (2011: 134–8).

Compared to South Korea, as discussed in Chapters 3 and 4, Taiwan paid more attention to unemployment rates and social expenditure (**Table 6.7**).

Table 6.7: Unemployment and the ratio of social expenditure in South Korea and Taiwan, 1980–2000

	Rate of unemployment		Social expenditure / public expenditure	
	<i>South Korea (%)</i>	<i>Taiwan (%)</i>	<i>South Korea (%)</i>	<i>Taiwan (%)</i>
1980	5.2	1.2	6.4	
1985	4	2.9	6.8	6.3
1986	3.8	2.7	7.9	6.6
1987	3.1	2	8.2	5.8
1988	2.5	1.7	7.8	7.6
1989	2.6	1.6	8.9	5.4
1990	2.4	1.7	8.9	8.8
1991	2.3	1.5	10.2	9.8
1992	2.4	1.5	9.7	8.6
1993	2.8	1.5	9.2	8.3
1994	2.4	1.6	9	8.7
1995	2	1.8	8.1	12.1
1996	2	2.6	8.6	15.7
1997	2.6	2.7	9.2	15.7
1998	6.8	2.7	9.8	14.2
1999	6.3	2.9	11.4	13.7
2000	4.1	3.2	11.9	16.9

Source: Kong (2005: 176)

Simulated NMEs: Institutional Complementarities and Their Effects

From the 2000s Taiwan's labor institutions were completely transformed from the hierarchical market economy (HMEs) into a simulated network market economy (simulated NME). It comprised four domains, namely, (1) high paid for functional flexibility, (2) vocational-based education and training, (3) highly protected labor market, and (4) union pluralism. These

institutions complemented one another in very sophisticated and productive ways, as explained below.

(1) **Wage regime vs. education and training system:** In the 1990s the nominal hourly labor costs of Taiwanese workers were comparable to those of South Korea (around 30 percent of the USA) (Stuivenwold and Timmer, 2003: 26), which was actually high compared to other Southeast Asian nations. Thus, Taiwanese households were very able to pay for education. Also, employers adopted a functional flexibility approach, which involves reshuffling workers to various tasks at shop-floor level. This forced workers to develop firm-specific skills and innovative methods to handle multi-tasking jobs.

The Taiwanese education and training system also reinforced this type of labor management by focusing on vocational programs and training. In 2000, around 60 percent of high-school students studied a vocational education (Green et al., 1999: 91).²³⁸ These vocational high-school graduates could proceed to either junior high college of technology (plus two years) or university of technology (plus four years). These programs for vocational graduates equipped students with the technical and managerial skills required by industries (**Table 6.8**) and increased their wages.

²³⁸ In 1990 this proportion reached its peak at 72 percent (Green et al., 1999: 91).

Table 6.8: The goals for graduates of the four levels of technological and vocation education in Taiwan

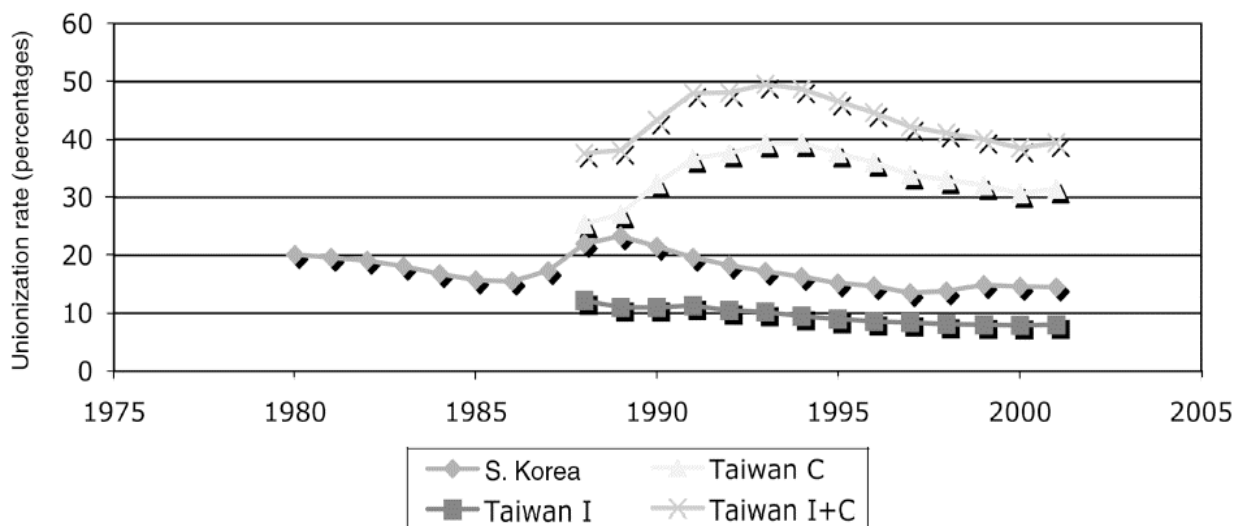
	Junior-high school technical arts program	Vocational high school	Junior college of technology	University/college of technology
Goals	To give non-academically oriented students the opportunity to acquire an employable skill before leaving school, or to lay the foundations for them to receive further education and training.	To provide students with adequate qualifications for basic-level posts, as well as further study skills, and to develop a workforce with sound work ethics and basic technical skills.	To teach students applied sciences and technology, and to turn out a workforce with mid-level technical and managerial skills.	To develop a higher-level workforce in the fields of technology, engineering, and management.

Source: Lee (2000: 2)

- (2) **Welfare schemes vs. education and training system:** The welfare schemes prioritized job security and were incrementally developed in this way for decades. This direction was fitted with the evolution of functional flexibility (instead of numerical flexibility to hire and fire) applied by many firms. Therefore, the employment rate and job tenure were high and, inversely, the turnover rate was very low in Taiwan. These results encouraged employers, especially large enterprises in high-tech sectors, to develop firm-specific training and preserve their skilled employees.
- (3) **Welfare schemes vs. labor regulations:** High labor market protection in Taiwan, as well as inclusive state–labor platforms (i.e., high coverage of the union system)

led to a high unionization rate in Taiwan. It is worth noting again that union participation was a prerequisite for accessing various welfare benefits so that Taiwanese workers actively participated in the labor-management council (mentioned above) and unions (**Figure 6.10**). Overall, the Taiwanese unionization rate increased after 1987 and reached a peak at around 50 percent in 1993. It then declined toward 40 percent in 2002.

Figure 6.10: Unionization rates in South Korea and Taiwan, 1980–2002



Source: Reprinted from Kong (2006: 370)²³⁹

While the unionization rate in Taiwan was higher than in South Korea, there was criticism by many scholars that, in reality, Taiwanese unions were weaker than in South Korea because, mostly, the increase of Taiwanese unionization after 1987 was augmented by craft or occupational unions (**Figure 6.10**). Indeed, Taiwanese unions were weaker than those in South Korea in terms of mobilizing power and

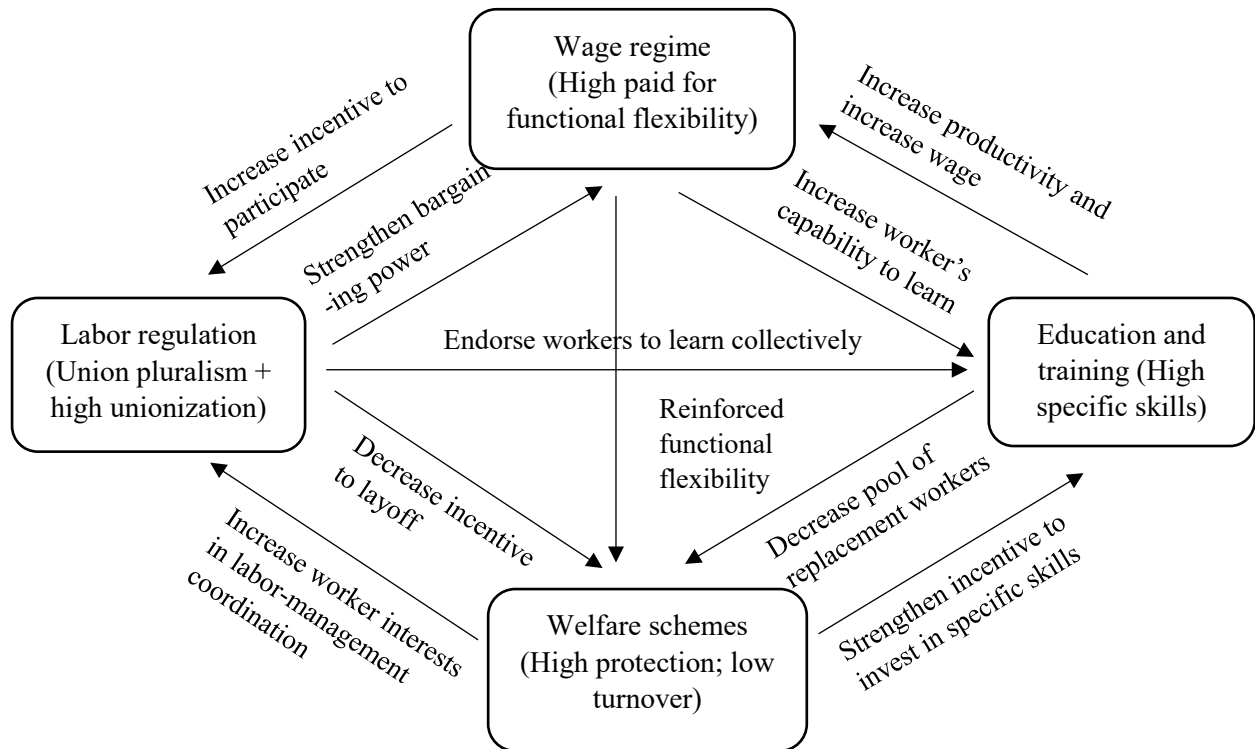
²³⁹ Taiwan C = Taiwanese craft union, Taiwan I = Taiwanese industrial union, and Taiwan I+C = total unionization rate in Taiwan.

size of disputes, although their compromised stance increased their “collaborative capacity.” In other words, unionization in Taiwan was part of *the class-compromise strategy*.

- (4) **Labor regulations and wage regime vs. training and learning system:** First, highly unionized and compromised labor regulations in Taiwan led to close collaboration between employers and employees. This developed high trust and high collaborative methods in production. Second, firms developed training systems to enhance the skills to handle broadly defined jobs, so-called functional flexibility, which was feasible only if they had trust in one another. Chen (2007: 1123) also found that the high-performance work system (defined by high wages, broadly defined jobs, high job security, high trust and high cooperation) was statistically linked to a higher unionization rate in Taiwan (p. 1128).

These labor institutions fabricated one another and locked themselves into a new institutional equilibrium. Their complementarities, presented in **Figure 6.11**, led to institutional advantages for Taiwan in technological development, the so-called “labor-complementing path” with two key features. First, Taiwan’s labor institutions supported job security and increased their flexibility via (1) broadly defined jobs, and (2) training for flexibly handling multiple tasks. Both job security and functional flexibilities constructed the seemingly contradictory skills of Taiwanese workers, that is, firm-specific multi-tasking skills.

Figure 6. 11: Simulated NMEs and their complementarities



Second, Taiwan's labor institutions created an environment of high trust and cooperation among employers and employees. Also, labor movements were moderate and able to compromise. These characteristics led to the class-compromise strategy, which allowed Taiwanese firms to develop incremental improvement at shop-floor level that leads to process and incremental innovation. According to San's survey (1990: 51), only around 7.31, 8.37, and 17.28 percent of Taiwanese enterprises faced technological bottlenecks around quality control, manufacturing technology, and utilization of machinery, respectively. Most of their problems came from product innovation (60.47 percent).²⁴⁰

²⁴⁰ The result was similar in other strategic sectors such as parts, semiconductors, computers, and consumer products (San, 1990: 51).

At this point, we can see the contrasting characteristics between Taiwan and South Korea. South Korean technological development was following a labor-saving path, employing more capital and saving labor because labor movements were radical and did not easily opt for a compromise. Hence, the firms implementing numerical flexibility had relatively high turnover rates and low job tenure among blue-collar workers. These approaches were supported by the legal framework developed by the state during the 1990s–2000s. Within this context, technological progress depended on the skilled workers who were trained from prestigious universities and drove product innovation and breakthrough technologies.

A Summary of the Third Case: Brazil

“Chapter 7 shows that the developmental state emerged after Getulio Vargas continually reformed Brazil’s bureaucratic system between the 1930s and the 1950s. During the process, it gradually provided supportive conditions for autonomous labor movements. Chapter 8 portrays the first wave of developmental labor, which heaved into sight in the 1960s and created economic impacts in the 1970s. The mobilization of developmental labor triggered the wage surge from 1970 to 1985 and stimulated businesses to invest in new technologies and new sectors, namely, energy, automobiles, aircraft, and computers. This prosperous momentum was interrupted in the mid-1980s when the hyperinflationary crisis appeared. Chapter 9 illustrates that the second wave of development revived as soon as the crisis ended in the late 1990s. It fully increased wages and transformed labor-related institutions in the 2000s under the leftist government of Lula. Because the labor movements in Brazil were bifurcated (a mixture of corporatism and combating features), institutional evolution simulated toward a bifurcated market economy.”

Chapter 7:

The Emergence of Bifurcated Labor Movements in Brazil

In previous chapters we have discussed two important latecomers, South Korea and Taiwan. This chapter covers the case of Brazil that will enhance our understanding of the latecomers' catch-up in three aspects. First, geographically, the Brazilian case insists that successful latecomers are not bound to flourish only on East Asian plains. Second, it broadens the perspectives and possibilities of catching-up models beyond small- and medium-sized countries. Brazil is vast in land and population, so its lessons are applicable to other large-sized countries. Last, Brazil shows us a very distinctive "two-institution model," or bifurcated market economy. To clarify these arguments, this chapter will explain three issues: (1) antecedent conditions before the rise of modern Brazil in 1930; (2) the construction of an alliance for economic growth led by the Vargas government (1930-45 and 1951-54); and (3) the formation of labor movements that would perform as a change agent in the late 1960s.

7.1 Antecedent Conditions

This section will explain various prior events that caused long-term consequences to Brazil's contemporary development, especially foundations for the agricultural economy, a low trust and highly unequal society, and the early labor movements in Brazil.

A Portuguese Colony and Sugar-based Industry

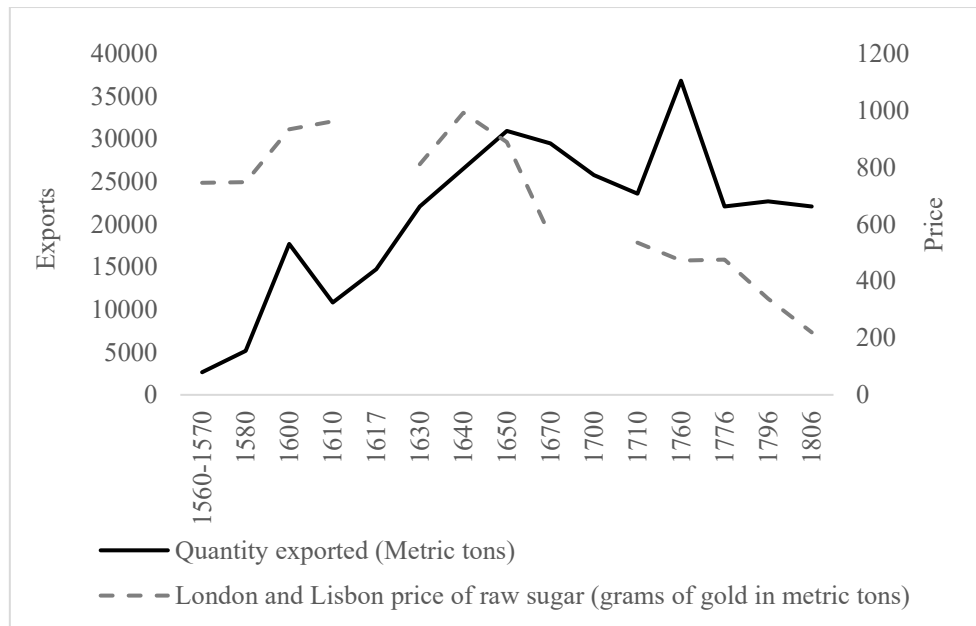
In the late fifteenth century, Spain and Portugal were leading nations exploring the New World. To avoid unnecessary conflict, they signed *The Treaty of Tordesillas*, dividing areas for exploration and occupation. Then, in 1500 Portugal landed on a coastal area known today as Brazil. The name Brazil was also derived from a promising local product – *brazilwood* – in that period. However, the exploration and exploitation of resources were inactive until the 1530s. To save on the costs of colonization, the Portuguese crown granted concessions for managing areas and resources to private entities, the so-called captaincy system, between 1534 and 1536. However, only two of fifteen captaincy colonies prospered, producing sugar cane. Then, the Portuguese crown returned administrative power and established direct administration from the royal court.

The court's representative – the governor general – quickly endorsed a sugar-based economy (run by private enterprises), which marked the beginning of the sugar cycle (1530–1700). This plantation system had three core elements. First, there was *latifundio* – a large estate of land owned by a single landlord – that ensured economies of scale. Second, there was monoculture. To some extent, the concentration of an agricultural crop was determined by geography and a climate suitable for planting sugar cane more than any other known and exploitable products from the Portuguese perspective. Third, there was slave labor, which was derived from central Africa. The last element was important because a typical sugar mill required 60–100 workers in order to run; and a large mill required around 200 workers. The slave system could guarantee a sufficient supply of labor (Naritomi et al., 2007: 9–10).

When these three elements were in place, sugar mills were widely established in cities and towns along the coastal areas of Brazil. In 1600 approximately 120 sugar mills were operating. In total, 55 and 30 percent were located in Pernambuco and Bahia, respectively.

Exported raw sugar increased continually from 1600 to 1650, and then slowly declined toward the end of the sugar cycle in 1700 (**Figure 7.1**).

Figure 7. 1: Exported raw sugar from Brazil and sugar prices in major markets,²⁴¹ 1560–1806



Source: Nastari (1983: 43)

While the sugar cycle ended around the 1700s, this primary sugar-based industry had three long-term consequences for Brazil. First, it provided a foundation for biofuel (i.e., ethanol), seed oil, and biofuel combustion engine industries in the twentieth century. Second, it gave birth to a powerful group, namely landlords,²⁴² who had both political and economic power in local areas, and these men played vital roles in Brazilian development until today. Third, the plantation system created a very polarized society, whereby the powerful landlords exploited slaves and commoners (Naritomi et al., 2007: 15). This kind of society had low trust

²⁴¹ Lisbon's prices are 1,580, 1,796, 1,806, and 1,812. Other years belong to London's prices.

²⁴² Sometimes, they were called *senhores de engenho*, which means "lords of the sugar mills."

and cooperation. Mostly, the system ran through what scholars called a hierarchical relationship and persisted until today. We will discuss these three consequences later in subsequent sections.

The Gold Cycle and Decolonization

After the sugar cycle had already declined, Portuguese explorers increasingly raided inland Brazil. Fortunately, in 1695 they discovered gold-bearing veins. They called the inland areas where gold mining was concentrated “*Minas Gerais*” (General Mines). In just seven decades, between 1700 and 1770, Brazilian gold production accounted for around 50 percent of all gold produced by the rest of the world between the sixteenth and eighteenth centuries (Naritomi et al., 2007: 11). This discovery attracted the attention of the Portuguese court to exert tighter control over Brazil: first, the court regulated emigration into Brazil; and, second, it enacted new taxes – the *quinto* and the *capitacao*. The aim of the *quinto* was to collect 20 percent of all mined gold in Brazil and the *capitacao* was collected from slaves used for mining.

Compared to the sugar cycle, the gold cycle (1690–1750) generated a different form of social relation. The latter required lower initial capital to open mining plots so it did not involve just a small circle of wealthy men. Although these investors utilized slaves, they allowed slaves to free themselves by incrementally collecting small portions of gold discovered in working plots (p. 14). Therefore, “the production implied a certain degree of horizontality in the social organization of the gold economy” (p. 13). In this way, unlike the sugar economy, the gold production system did not erode social trust among locals or polarize people. The system, however, badly disrupted the relationship between state and business groups.

In the second half of the eighteenth century, gold production was exhausted, but the Portuguese court wanted to maintain returns. Therefore, a new tax called “*derrama*” was

implemented. This tax was collected in addition to the personal assets of those involved in the gold business. Any tax evasion led to imprisonment. The oppressive method raised negative attitudes among locals toward the colonizer (Bethell, 1989: 11).²⁴³ At the same time, the American Revolution in 1776 fueled the idea of decolonization among Brazilians. In the late 1780s, a revolutionary group – *Inconfidência Mineira* – led by the white upper-class, was formed. Unfortunately, the group was detected and captured by the colonial government in 1789. The leader was sentenced to death and parts of his body were exhibited in several towns to discourage similar actions.

In this way, we can see that the method used to control the gold economy led to the decline of the colonial regime itself. Yet it was not mature enough to decolonize Brazil.

The critical turning point occurred when French armies led by Napoleon Bonaparte seized Portugal in 1807. Consequently, Prince Regent João decided to retreat with his royal court to Brazil. The court arrived in Brazil in 1808 and the prince quickly opened a trade treaty with Britain. This action would later provide a higher chance of declaring independence because Brazil could gain foreign trade and currencies without the monopolistic patronage of Portugal. Prince João also established the necessary infrastructure in Brazil, such as the first Bank of Brazil (*Banco do Brasil*), a power factory, a military academy, a medical school, and even a luxurious opera house. These facilities paved the way for Brazil to stand on its own feet when the time came.

In 1820, four years after Prince João's queen had died and João was inaugurated as king, there was a political crisis in Portugal. A coup leader requested that the Portuguese royal court

²⁴³ In the eighteenth century, many Brazilian citizens were fourth- or fifth-generation settlers. These people blended in with the indigenous Brazilians. They were called *mameluco* and *cabloco*. Another kind of inter-bred race was the Portuguese–Africans, called *mulatos*, who accounted for around 30 percent of the population in Sao Salvador in 1803 (Nastari, 1983: 47). These people did not have much emotional and ideological compassion for the Portuguese court. While they did not have direct conflict with the court, when their bosses did, they did not hesitate to support them.

return to Portugal immediately. King João quickly went back to Portugal in 1821 and appointed his son, named “Pedro IV of Portugal,” as regent. When King João left Brazil, it was another critical period. The regent knew that many Brazilian revolutionary groups wanted to separate from Portugal. However, he did not choose to fight with these forces. Instead, the regent sought an opportunity to declare independence from his father’s court, and he became “King Pedro I of Brazil” in 1822. This effort reconciled his government with many independent movements, which still accepted a monarchy.

The Rise and Decline of the Brazilian Constitutional Monarchy

King Pedro I quickly consolidated power and deterred all efforts to bring back the Portuguese government. He ruled, and was governed himself, by a constitution enacted in 1824. King Pedro I, however, voluntarily abdicated the throne and returned to Portugal to resolve his domestic issues in 1831. Consequently, he abruptly handed the empire to his son, who was only five years old. The young Pedro surprisingly grew up to be a benevolent king in many ways after assuming full power as King Pedro II in 1840. The first set of challenging incidents²⁴⁴ occurred from 1845 to 1852; however, all problems were firmly controlled within a brief period of time.

In the 1850s King Pedro II kept peace long enough (the next series of international war came in the late 1860s) to push developmental projects, including a railroad, a telegraphic, and a steamship. The length of the railways increased from 0 kilometers in 1852 to 20,000 kilometers at the end of the nineteenth century (Summerhill, 1998: 541). Generally, the railway connected the production bases of agricultural goods with port cities and also among the big

²⁴⁴ They were disputes between Brazil and the British Empire about an illegal slave trade, the Praieira Revolt, and the Platine War.

cities themselves. Coffee was a key product following the decline of the sugar and gold cycle. The amount of exported coffee increased from 18.4 percent of total exports in the 1820s to 43.8 percent in the 1830s (Nastari, 1983: 71). In this way, the railways were focused on transferring coffee to port cities such as Sao Paulo and Rio de Janeiro (**Figure 7.2**).

Figure 7.2: Six of Brazil's main railways in operation c.1910

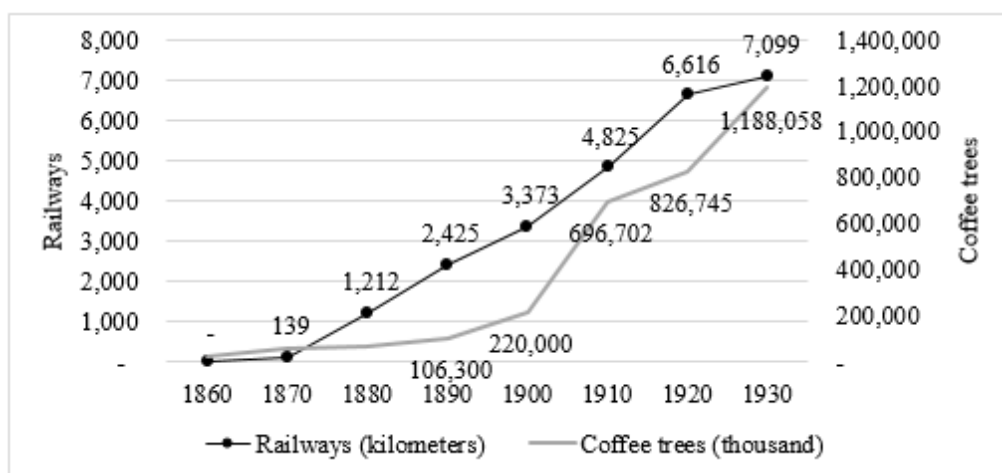


Source: Summerhill (1998: 548)

From the 1870s, the intertwined benefits of the railway capitalists and coffee planters repeatedly increased. More railways being inserted into coffee farms led to lower costs of transportation and higher competitiveness. At the same time, higher transactions in coffee

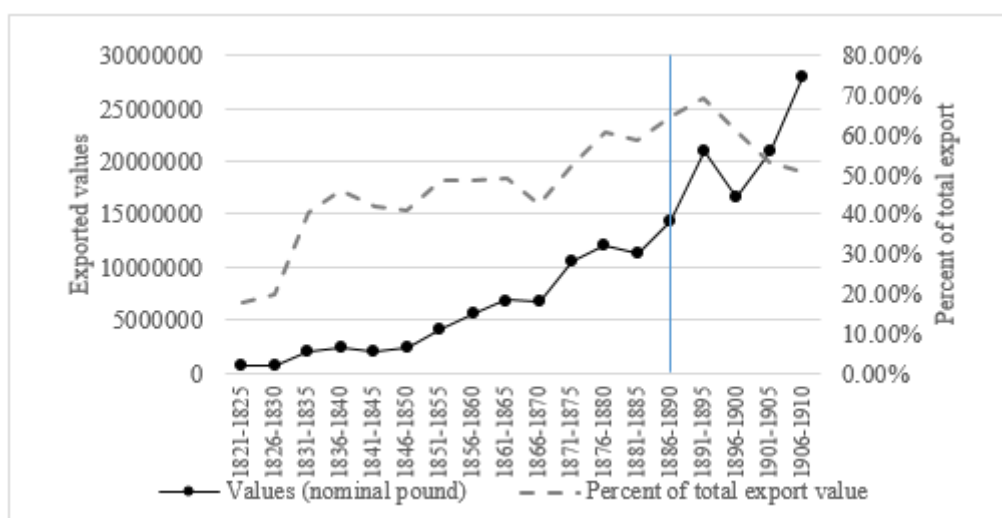
trading led to a higher utilization rate and profits from the rail system. In this way, the amount of railways, coffee trees, and exported coffee continually expanded (**Figures 7.3–7.4**). These interest groups also had close connections to public officers, at both national and state level. Their close alliances would jointly play vital roles in manipulating Brazilian politics under the old republic between 1889 and 1930 (Mattoon Jr., 1977).

Figure 7.3: Growth of railways and coffee trees in Sao Paulo, 1860–1930



Source: Mattoon Jr. (1977: 286)

Figure 7.4: Values and shares of exported coffee, 1821–1910



Source: Nastari (1983: 72-73)

In many countries, the expanding railways generally led to economic growth because the railways connected many fragmented markets in the country. Goods and services flowed from one place to another and the value of transactions increased. This kind of growth was called “*Smithian growth*.” At the same time, it provided opportunities to develop mass production, which required huge demand, connected by infrastructure. Furthermore, industries linking to railways such as iron and steel tended to emerge. In Brazil, however, the scope and degree of occurrence of these benefits were limited. For example, between 1960 and 1979, real income per capita of Brazil increased by only 0.67 percent per year (Araujo et al., 2008: 578) and possible new industries did not emerge.

This was partly because of the nature of railway investment, which initially was concentrated on the coffee sector and areas where political power was located. Its connection to specific markets created limited chances for other products to reap benefits. Moreover, there was a scarcity of free labor, which is necessary for industrial development. In the 1970s King Pedro II pushed another ambitious project, namely, abolition of the slave system. The project possibly prepared independent workers for further industrial development; however, it also pushed the monarchy into trouble.

In 1871 King Pedro II enacted the Free Birth Law (*Rio Branco Law*), which freed all children born to slave women. In 1885 his government also declared that slaves would be released when they reached the age of 60. The straw that broke the backs of the rich landlords came in the late 1880s, when King Pedro II tried to abolish the whole slave system without proper compensation. These efforts had two critical consequences. First, it expanded the number of independent workers and created a chance for labor organization. Second, it turned the wealthy and landlords (i.e., coffee planters in Sao Paulo, ranchers in Minas Geraes, and sugar planters in Bahia), who owned slaves as assets and properties, against the monarchy (Martin, 1921: 7).

Although these great landowners were important, only their efforts could not overthrow the monarchy. There was another critical faction – the army. While it was a fact that the military coup in 1889 had ruined the empire, there was no clear explanation for how the army switched to act against the monarchy. Alvin Martin explained that the end of the Paraguay War in 1870, following a long period of peace, led to the lax discipline of the army (p. 25). The under-utilized military was then more involved in politics, in both the “Chamber of Deputies” (the lower house of Brazilian parliament) and the Senate (p. 26). Through this process, the army began to groom its own political factions and benefits.

Serious tension between the imperial government and its army heightened during the 1880s in terms of both material interests and ideological issues.²⁴⁵ In the end “a barrack-room conspiracy,” participated in by just a fraction of the Brazilian army, whose grievances were skillfully exploited by a small group of determined men” (p. 46), destroyed the 67-year-old empire in one stroke with the revolution of 1889. All royal families were sent to Europe, including the dethroned king, and a new regime – the federal republic – was established with the support of a handful of landowners in rich states.

The Republic of Café com Leite and Initial Labor Movements

Under the new regime, by design, the Brazilian Constitution of 1891 allowed small groups of people to vote (less than 5 percent of the total population), especially the white upper-class. These people were concentrated in big states, in terms of population size and wealth, such as Sao Paulo (traded coffee) and Minas (traded dairy products). In practical terms, they had more

²⁴⁵ For more detail, see Martin (1921). In fact, beyond material conflicts between the army and the imperial government, Martin also offered insightful details of the emergence of Republicanism and also King Pedro II’s ideas about the future of the monarchy. These two other factors also contributed to the collapse of the empire in 1889.

power to manipulate the federal government.²⁴⁶ Therefore, ironically, the regime was labeled the republic of *Café com leite* (the republic of coffee with milk).

On a positive note, Love (2013) shows that the republic created two important legacies for modern Brazil. First, it developed a more integrated capital market and supported new registered companies. This effort stimulated financial activities and broadened commercial participation. New capital flew not only to the traditional sectors but also to the primary industrial sector, particularly the textile industry. Second, the government inherited an ambitious infrastructural project – the railways – and continually invested in it. These two policies sparked real income per capita and hiked it up by around 3.3 percent per year between 1900 and 1929 (Araujo et al., 2008: 578–9). This rate of growth exceeded what the monarchy had accomplished in the previous century.

Simultaneously, the republic excavated inequality, spanning a regional aspect (large versus small states), an asset-holding aspect (landowners versus have-nots), and politico-economic opportunities. For example, because of the commodity boom,²⁴⁷ states such as Sao Paulo and Minas gained more taxes than could be reinvested in public goods. The relatively higher business profits and better infrastructure reinforced the higher rate of cumulative investment and growth (Love, 2013). In other words, the republic created both high growth and high inequality. These economic transformations and inequalities amplified social tensions, especially when emerging political groups such as nationalists, the middle class, and industrial

²⁴⁶ An unequal power and contestation among the political elites led to various crises, such as the Two Naval Revolts (1891 & 1893–4), the Federalist Rebellion (1893–5), the War of Canudos (1896–7), the Vaccine Revolt (1904), the Revolt of the Whip (1910), and the Revolt of Juazeiro (1914) before World War I. However, they are out of the scope of this thesis.

²⁴⁷ According to above information, coffee trees and export value increased after 1900. However, coffee exports did not increase significantly, or even declined (albeit still the top exported product), after 1895. At the same time, the share of other agricultural products, such as natural rubber and cocoa, expanded (Nastari, 1983: 71), which meant that the benefits of the new regime were diffused beyond coffee and diaries.

workers gradually organized themselves more progressively and complemented the social contexts (i.e., wars and economic recession).

Workers, for instance, jointly established the first central labor organization, *the Confederacao Operaria Brasileira* (COB), in 1906.²⁴⁸ When living costs surged during World War I, workers needed to fight for an increase in wages. In just six years, between 1912 and 1918, the number of organized workers in Rio de Janeiro expanded from just 3,000 to 150,000, of which 30,000 were textile workers.

In particular, in 1917, there was an important demonstration for increased wages. From the beginning, it was initiated by workers in just one furniture factory, Moreira Mesquita & Cie. After the police captured four leaders of the strike, workers from other plants staged more strikes and lock-outs across industries such as textiles, shoe-manufacturing factories, and so on. Even if the police successfully controlled the situation, these spontaneous mobilizations unveiled themselves and led to active consciousness among workers in Brazil. The expansion of militancy also created crucial momentum for creating organized groups, even in the far northern Amazonian state of Para (Alexander and Parker, 2003: 21–3). In 1919 approximately

²⁴⁸ An embryonic organization of labor was founded in the 1880s to provide self-help among workers in the dock and railway industry (Gozetto and Thomas, 2014: 220). However, overall, they were not successful at mobilizing until World War I. At least three conditions determined the inferior status of the labor movements before World War I. First, obviously, the government, landowners, and capitalists jointly repressed any movements caused by labor unions. Generally, when disputes occurred, capitalists quickly called the police to control the situation. Then, the leaders of the riots were fired and sanctioned (Maram, 1977: 270). These negative consequences led to a coordination failure, namely, a problem finding sacrificed leaders. Second, even in specific cases, when workers could unify against unfair treatment, capitalists could utilize the Deportation Law to exile immigrant workers to their home towns. During that time, unlike the standard judicial system, “the government did not have to prove its case to deport; accusation sufficed” (p. 260). “The impact of these deportations on the rank and file should not be neglected. In most cases, expulsions involved not labor leaders, but merely persons found actively participating in a given strike” (p. 261). However, the repressive schemes could not well explain fragile labor organizations because “there are many examples of labor movements that encountered much more repression than the Brazilian and survived” (p. 257). This argument leads to the third point, namely, heterogeneity among workers. Between 1890 and 1921, there were many Portuguese and Italian immigrant workers (around two-thirds of total immigrants). These white workers usually had conflicts with locals, especially colored ones (p. 258). Moreover, Portuguese and Italian workers also had to deal with different languages, cultural barriers, and low trust among one other. Therefore, generally, “when the labor movement was struggling to become a potent force in society, an important segment of the Brazilian working class refused to participate in the strikes of the activists” (p. 260). While these labor movements were weak and occurred infrequently, they were based on an anarchist ideology and autonomous mobilization.

1,500,000 textile workers marched on the streets in Rio de Janeiro and other cities (Alexander, 1956: 230).

At the same time, a young and energetic group of army personnel, broadly called the “*tenentes*,” slowly formed into a political movement. *The tenentes* believed in socialist ideas and requested that the federal government deliver land and other social reform programs. When the old republic did not respond to these offers, they began various attempts to revolt against the regime. For example, the historic revolt named *the Long March of the Prestes Column* occurred between 1924 and 1927. While the rally itself failed to capture the office, it exemplified hope for social reform through Brazilians (pp. 231–2). These laborers and *tenentes* movements paved the way for the coup in 1930.

7.2 Getúlio Vargas and the Strong Enough State during 1930–1964

In 1930 there was a successful revolution, and one politician, Getulio Vargas,²⁴⁹ was able to grasp the moment and deliver change for the Brazilian political economy by assimilating all of these preconditions into his political strategies. This section explains the rise of Vargas’s regime as the “strong enough” state. Then, it discusses how Vargas and his successive presidents gradually transformed Brazil into a more modern economy between the 1930s and 1960s.

²⁴⁹ He ruled Brazil as interim president between 1930 and 1933. Then, he was re-elected as president from 1934 to 1937, when he shut down congress and established a short-lived authoritarian regime named the *Estado Novo* (New State). He declared a state of emergency and continued in government until 1945, when World War II ended. He stepped down briefly between 1945 and 1949. As a result of the bad performance of the subsequent president, Eurico Dutra, Vargas was re-elected in 1950. Alas, in the late phase of his second term, Vargas encountered a political crisis and committed suicide in 1954.

Vargas's Trials and Errors in Rio Grande do Sul

Vargas was born into a *gaúchos* family – a skilled traditional horseman – in Rio Grande do Sul (henceforth, Rio Grande). He initially served as a soldier of the state and turned to politics in the early 1910s. One of the most important steps in his political career was winning the governorship of Rio Grande in 1928 over the incumbent, who had controlled office since 1898. Between 1928 and 1930, in his home state, Vargas had the chance to experiment with a set of policies that he then implemented across the whole nation when he became president.

In 1928 Rio Grande encountered a structural problem. Unlike center-south states such as Sao Paulo, Rio Grande depended on incomes from the internal market. From the end of the nineteenth century, Brazilian coffee slowly lost its comparative advantage; therefore, coffee planters in the center-south states steadily diversified their products. Some of these products overlapped with Rio Grande's producers. Unfortunately, the producers in the center-south states had advantages when it came to the railway network, so they could manage transaction costs efficiently and increasingly stole the market share of Rio Grande (Bak, 1983: 257–8).

Vargas assumed state office in this context, in which excessive competition among Brazilian firms heightened. Vargas and his co-worker Osvaldo Aranha (later, a finance minister of the federal government) developed an initial program to cope with the problem. There were three components to the program.

First, similar to South Korea and Taiwan, they²⁵⁰ argued that the state should play a more proactive role in stabilizing the economy. This idea might be simple, but it was completely different from the laissez-faire method of the republic between 1890 and 1930 (p.

²⁵⁰ The idea of the proactive state came to Vargas from at least two sources. First, gaúcho's tradition in Rio Grande do Sul adopted the positivist philosophy from Auguste Comte. This philosophy supported the strong and centralized roles of the state (Bak, 1983: 259). Second, examples of pre-1930s European corporatists in Portugal, Spain, and Italy also inspired Vargas (p. 262).

259). Second, they learned from the experience of the rice cartel, jointly operated among farmers, millers, and merchants, to maintain prices and decrease excessive competition (p. 261). Afterwards, Vargas and Aranha expanded the cartel model to other products in Rio Grande such as *charque* (dried meat), wine, and lard. Third, they enhanced cooperatives as the final piece of the jigsaw in their model. They believed that the cooperative would “improve the organization and efficiency of production” (p. 263).

In 1929 Vargas realized that the program could not survive financially if production did not modernize and become more advanced and higher value. In 1930, the last year of his governorship, he aimed to upgrade production of the three commodities. For example, a new plan for “*frigorífico*” (frozen-beef plant) was introduced (p. 271). The program was not only designed to cope with the economic problem, but also intended to harmonize class interests and establish mutual collaboration with producers (p. 266). Both ranchers and processors were called to collaborate in establishing the frozen-beef plant.

This innovative program and its objectives were relevant and even satisfied many political groups, ranging from capitalists to peasants, workers, and the *tenentes*. Therefore, when the army staged a coup in 1930 and assumed power from the old republic, the military appointed Vargas president of the provisional government. While he learned valuable experience from Rio Grande, implementing a similar program at federal level was another thing altogether. Other factors, including an efficient bureaucratic body and support from both capitalists and civil society, were needed to accomplish an advanced economy. These issues are discussed in the following sections.

The “Strong Enough” State and Its Pockets of Competence

A year after Vargas ruled Brazil, in 1931, the prices of exported coffee declined to just “one-third of those prevailing during the five years preceding the collapse” (Hilton, 1975: 758). The decline of main agricultural exports stimulated Vargas to hurriedly think of industrialization. Many capitalists also supported the idea. However, in order to industrialize Brazil through the big watershed structure of Brazilian bureaucracy inherited from the old republic, Vargas and successive presidents such as Juscelino Kubitschek (1956–61) needed to fix various things. I shall roughly separate them into three layers.

First, Vargas established an instrumental agency for governing the massive bureaucracy. One of the most urgent tasks was to obtain accurate information. A National Department of Statistics was founded within the Ministry of Agriculture and Finance in early 1932. Then, he pushed further by separately creating a National Institute of Statistics (NIS) in 1934 (p. 768). The NIS standardized data, collecting it from federal to state level, and provided necessary sets of information for the government to make important decisions. This also offered the chance for the government to initiate a precise sectoral plan for each economic sector in later periods.

Second, there was a bureaucratic layer. In 1936 Vargas tried to reform a “heavy and very complicated” administrative body (p. 767). In this way, he established the Federal Council of the Civil Service System (*Conselho Federal do Servico Publico Civil*),²⁵¹ aimed at constructing a competitive entrance examination. Also, the council comprehensively sought to modernize administrative personnel, budgeting, and services. While it faced serious resistance, involved many lengthy processes, and ultimately even failed to deliver a fully Weberian model²⁵² (Holanda, 1994: 180), Vargas’s initiation revealed that the government knew what

²⁵¹ Later, it was transformed into the Department of Public Service Administration (DASP – *Departamento Administrativo do Servico Publico*).

²⁵² Broadly, this means fully competitive examination and merit-based promotion.

should be done in order to form a strong and capable bureaucracy as a precondition of the industrializing process.

While it was not feasible for Vargas to quickly establish the Weberian bureaucratic system, he constructed what can broadly be called “a pocket of competence” – a capable sub-organization to deliver specific goals. For example, Vargas established a tax agency named the *Secretaria da Receita Federal* (SRF) in 1934. Weyland (1998: 53) evaluated it and said that, “[the SRF] is among the best-organized parts of the state.” It provided necessary resources for state developmental projects; and it was also a measurement of an extractive capacity of state. For example, the federal tax burden increased from 5.2 percent of GDP in 1942 to 6.5 percent in 1947, and it was maintained, and even increased, until the fiscal crisis came in the 1970s (p. 55).

When resources for development were secured by a consolidated tax system, another important issue was an institution for the effective allocation of funds and investment. One of the most crucial organizations, which has played an important role until today, was the Brazilian Economic Development Bank (BNDE), formed in 1952. It adopted the competitive examining recruitment from 1956 and its performance was outstanding. When Kubitschek announced an administrative target in the late 1950s, the BNDE accomplished 102 percent of the plan, which surpassed the average (32 percent) performed by other agencies (Evans, 1989: 577). Until the 1960s, it allocated loans and support to infrastructural projects and consumer products.

These capable bureaucratic organizations, so-called pockets of competence, then focused on supporting the third-layer organizations, that is, a joint platform among public organizations and private enterprises in specific sectors. For instance, when the bureaucracy was still in a process of transformation, Vargas established an ad hoc organization named the

Federal Foreign Trade Council (FFTC) in the 1930s. The FFCT played significant roles in international trade negotiations, proposing strategic ideas for economic development in the early period of Vargas's first term.

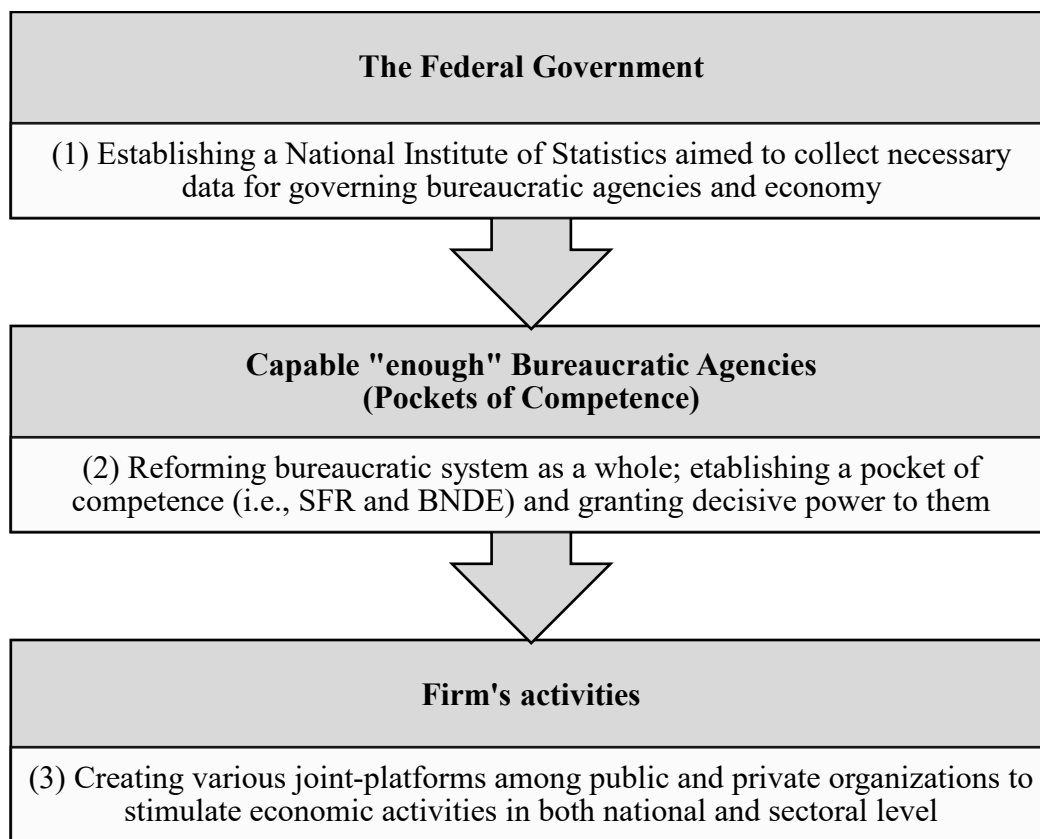
In the agricultural sector, Vargas established the National Coffee Council and the Institute for Cacao in Bahia in 1931. Later, he also formed the Institute of Sugar and Alcohol (Evans, 1979: 87). In the manufacturing sector, in the 1950s, Kubitschek created an Executive Group for the Automobile Industry (GEIA) as a “mini-pilot agency” to coordinate all players in the automobile industry (Evans, 1989: 580). Also, the government worked closely with the Confederation of National Industry, a consolidated organization among industrialists, established in 1939 (Gozetto and Thomas, 2014: 220). These organizations provided the regulatory platform for the state and channels of negotiation for private enterprises.²⁵³

It should be stated clearly that the structure formulated in **Figure 7.5** was not constructed systematically in a single stroke by the government. Rather, the constructing processes were scattered and even improvised. However, as we shall see in the following sections, these bureaucratic bodies worked well to support Brazilian development. Another point should be made here, that these bureaucratic elements did not completely match the East Asian yardstick of the developmental state. The competitive bureaucratic recruitment and merit-based promotion, for instance, were not fully established during this period. It was only initially trialed in some capable state agencies. Together, the joint platforms for development were not institutionalized. Instead, “relationships became individualized, taking the form of what Fernando Henrique Cardoso called ‘bureaucratic rings,’ that is, small sets of individual

²⁵³ Another significant realm was state-owned enterprises (SOEs) such as Petrobras (Brazilian Petroleum). Indeed, before the 1980s, these SOEs were not playing the role of a joint platform for development. However, after the Brazilian government widely implemented privatizing schemes, private entities jumped into the game and got involved actively to develop chief SOEs, for instance, in the steel-related, aircraft, and mining sectors. These issues will be discussed again in the following sections.

industrialists connected to an equally small set of individual bureaucrats, usually through some pivotal office holder” (Evans, 1989: 579).

Figure 7.5: Vargas’s strategies to construct an efficient bureaucracy during the 1940s–1950s



However, is it necessary to follow a complete set of East Asian formulas to be a capable state for development? Brazilian experiences demonstrate otherwise. We will see in the following sections that Brazil and possibly other intermediate states – the majority of global society – could accomplish higher economic development without having all of the features of East Asia. Only pockets of competence were required in some leading public and private agencies; the state then linked them all in a productive way. Unquestionably, the best solution is to institutionalize all these joint pockets of competence into a long-term plan. However, if

this is not possible in the short term, the second-best way is to maintain and continue the bureaucratic rings toward the future, which actually happened in the case of Brazil in the 1950s.

Policies for Brazilian Development before 1964

Economic policy under the Vargas regime could be categorized into four packages – stabilization, infrastructure, trade, and investment.

The stabilization package began by supporting agricultural products, especially coffee. This effort was misleadingly interpreted as anti-industrialization. However, the supportive schemes for coffee growers and traders were necessary for rebooting local demand, which declined massively following the recession of the coffee market in the early 1930s. Stanley Hilton rightly concluded that, “as the value of coffee sales dropped, rural demand declined and the result was extensive closing down of [industrial] plants. Support of the rural economy cannot therefore be construed as evidence of opposition to industry” (Hilton, 1975: 760). These coffee growers were actually the ones who bought light manufacturing products such as textiles, and they formed the basis of initial industrialization in Brazil.

Another dimension of stabilization came in the form of labor protection. This was a clear intention of the government: “A minimum wage had permitted the workers to increase consumption, acquire more from the producers and, consequently, better the conditions of the internal market” (p. 765).

Infrastructural projects were also pushed, especially roads and railways. The Federal Foreign Trade Council (FFTC), the ad hoc platform promoting trade subordinated under Vargas, was largely involved in these projects. In 1933 Brazil offered Bolivia and Paraguay the opportunity to build railways connecting them with Sao Paulo. Implicitly, Vargas expected

importing materials from these two countries and, in return, to sell finished products to them. The general plan for transportation finished in 1934 and the aim was to double the number of highways by 1940 (p. 768). In 1938 Brazil actively went into Bolivia for energy, and extensive railroad programs were drafted and negotiated. Around 160 kilometers of railroads linking Brazil and Bolivia had already been finished by 1944, and another 400 kilometers were promised (p. 774). This far-reaching transportation led to a higher level of trade.

Trade policies were delivered to support import-substitution. In terms of import tariffs and other taxes, there were three sub-sets of policy. First, Vargas decreased import tariffs for required materials such as cement, glass, tires, cellulose, and so on (p. 760). These raw materials, which accounted for around 90 percent of Brazilian imports from 1933 to 1937, were still not produced by local industrialists and usually demanded Brazilian infant industries. Second, there were high tariffs and other tax rates for strategic products of Brazil aimed at substituting foreign products. For example, the government imposed a 300 percent *ad valorem* tax on sales of foreign paper cups in 1932 (p. 761). In other cases, there was a special tariff rate or import prohibition for certain items.

While stabilization packages, infrastructural construction, and protective trade policies took their place, they could not work well if producers and investors were not active. As such, the last set of policy – **the investment policy** – was really important.

The first dimension of investment policy was providing credit in the economic system. For example, in the early 1930s, the government endorsed the Banco do Brasil and private banks providing loans to various promising firms. While loans were directed to agricultural sectors in the early phase of the policy, they were gradually allocated to manufacturing sectors. The number of loans shared by the manufacturing sector surpassed agriculture and mining in 1936. In the next year, the share of the agro-mining sector declined sharply by 13 percent of

total loans. At the same time, credits for the construction and manufacturing sectors increased by 6 percent (p. 762). This was a turning point from stabilization to pro-active industrialization in Vargas's regime, followed by the declaration of the *Estado Novo* campaign.

The second part was a sectoral investment promotion. Similar to other developing countries, textiles, agro-based, and other light-manufacturing sectors were a first step on the industrializing ladders. These sectors were labor-intensive and some related to colonial legacies (i.e., sugar-based sectors). Simultaneously, the government promoted capital-intensive and security-related industries such as petroleum and steel. Only one exceptional case that did not relate to any security issue was automobiles. As a result of a lack of capital in the 1930–50s, Brazil exported labor-intensive products and imported various capital-intensive goods (including raw materials for their production).

This trade structure certainly led to a deficit in the balance of trade because the former had lower value-added than the latter. Thus, the government gradually shaped a comprehensive program for “horizontal import-substitution industrialization (ISI),” to expand various self-sufficient productions of capital-intensive goods in a short space of time. This intension was reinforced by making overvalued exchange rates that benefited the import of materials and at the same time discouraged the purchasing of finished products from abroad. In the 1950s this ISI policy complemented the law of similarity (*Lei do Similar Nacional*), “under which a product could only be imported if it could be proved that a similar product was not produced in Brazil” (Figueiredo, 2008: 61).

After Vargas committed suicide in 1954, several presidents reigned very briefly. As such, they could not create any further significant policies. Between 1954 and 1964, only two presidents were able to stay in office for more than two years, namely, Juscelino Kubitschek (1956–61) and João Goulart (1961–4) (**Table 7.1**). They both utilized the administrative

foundation constructed in Vargas's era to intensify the ISI policy and push capital-intensive industrialization.

Table 7.1: A list of Presidents of Brazil, 1930-1964

No.	Presidents	Periods
14	Getúlio Vargas	1930–1945
15	José Linhares	1945–1946
16	Eurico Gaspar Dutra	1946–1951
17	Getúlio Vargas	1951–1954
18	Café Filho	1954–1955
19	Carlos Luz	1955
20	Nereu Ramos	1955–1956
21	Juscelino Kubitschek	1956–1961
22	Jânio Quadros	1961
23	Ranieri Mazzilli	1961
24	João Goulart	1961-1964
25	Ranieri Mazzilli	1964

Kubitschek, for instance, announced the Goals Plan (*Plano de Metas*), the aim of which was to reach “fifty years of progress in five.” Under this plan, the government made a list of targeted industries (i.e., steel and automobile) and allocated goals to capitalists who accepted incentives. These beneficial capitalists were then supervised by the state agency named “the development council” (Czarnecka-Gallas, 2013: 16). An additional two integrated steel plants were established. Also, the government vertically expanded the ISI effort to downstream sectors related to steel, such as shipbuilding and automobiles. Incentive packages – import-

duty rebates and a protective market – were offered to both local and foreign companies (Auty, 1995: 263–4).

7.3 The Emergence of Bifurcated Labor Movements and Outcomes

This section will show how Vargas tried to control laborers via the corporatism and welfare schemes. However, his efforts also gave birth to autonomous labor movements in the mid-1940s. These movements incrementally leveled wages up in the 1950s. The increasing wages in turn stimulated industrialization and early capital-intensive investments in Brazil.

Combatants under Corporatism

In 1930, when Vargas was appointed president, under the influence of Italian Fascist corporatism, he quickly subordinated both those active workers and capitalists under state control in the name of support (Almeida and Lowy, 1976).

Vargas then established a centralized structure of employee and employer management. “Each sector of production (industry, commerce, etc.) had a *sindicato* (union or employers association²⁵⁴), federation, and confederation for both employers and workers. Workers were not allowed to form a unified central national labor confederation. Nor could unions in different sectors (e.g., manufacturing and transport) join together. The unions were financed by the “union tax” deducted by the government from the pay of every worker, even though workers

²⁵⁴ For example, in 1928 the State of Sao Paulo approved industrialists to create an association named “the Central Industrial Association of the State of Sao Paulo” (CIESP). To comply with a new labor law in 1931, the CIESP changed its name to the Federation of Industries of the State of Sao Paulo (FIESP). In 1933 the FIESP jointly formed “the Industrial Confederation of Brazil” together with two other big industrial states – Rio de Janeiro and Rio Grande do Sul. Finally, they changed the name again to the Confederation of National Industry (CNI) as the representative organization for industrialists in Brazil in 1939. Vargas actively worked with the CNI to support industrial development (Gozetto and Thomas, 2014).

were not free to join the union, which was financed by this involuntary contribution. The ministry of labor controlled the finances of the unions and could intervene at any moment” (p.104).

Vargas also increased the minimum wage and provided a social security system (Gozetto and Thomas, 2014: 220). To a large extent, these efforts were not purely benevolent roles on the part of the government, but a trade-off between economic benefits and political loyalty to Vargas himself. Some obvious evidence became apparent in 1945, when Vargas expanded voting rights to urban and industrial workers (French, 1989: 8), whom he patronized through the above schemes. Many scholars tended to interpret that Vargas’s state corporatism worked well in keeping peaceful labor market. “For too long, the relationship between Vargas and workers has been seen as a one-sided manipulation of the masses by the state and elites” (French, 1989: 6).

Nevertheless, this kind of interpretation underrated the roles of autonomous organized workers in economic development. I shall argue that in 1945 there was a critical change in the labor relations of Brazil, even under the tight subordination of Vargas’s regime. In other words, Vargas enfranchised the right to vote for millions of industrial workers. This political strategy painted an image of an autonomous subject in political, as well as economic, arenas in workers’ minds. Simultaneously, the Brazilian Labor Party (*Partido Trabalhista Brasileiro*: PTB) was established and the Brazilian Communist Party (*Partido Comunista Brasileiro*: PCB)²⁵⁵ resumed its legal status. These labor-based parties got a sizable share of the vote in the 1945 election.

²⁵⁵ The Brazilian Communist Party was founded in 1922 in Rio de Janeiro. During the late 1940s, the communist movements were also appealing in Brazil, as well as international societies. In 1945 the party got more than 500,000 votes for the first presidential election, which accounted for around 9.7 percent of the total votes. In the Chamber of Deputies and Federal Senate, the party got 8.45 and 9.75 percent of the total votes, respectively. In 1947 the Communist Party had around 200,000 members. However, these excessively radical movements led to the state strike-back. The number of members decreased substantially to 20,000 persons in 1950 (Alexander and Parker, 2003: 94).

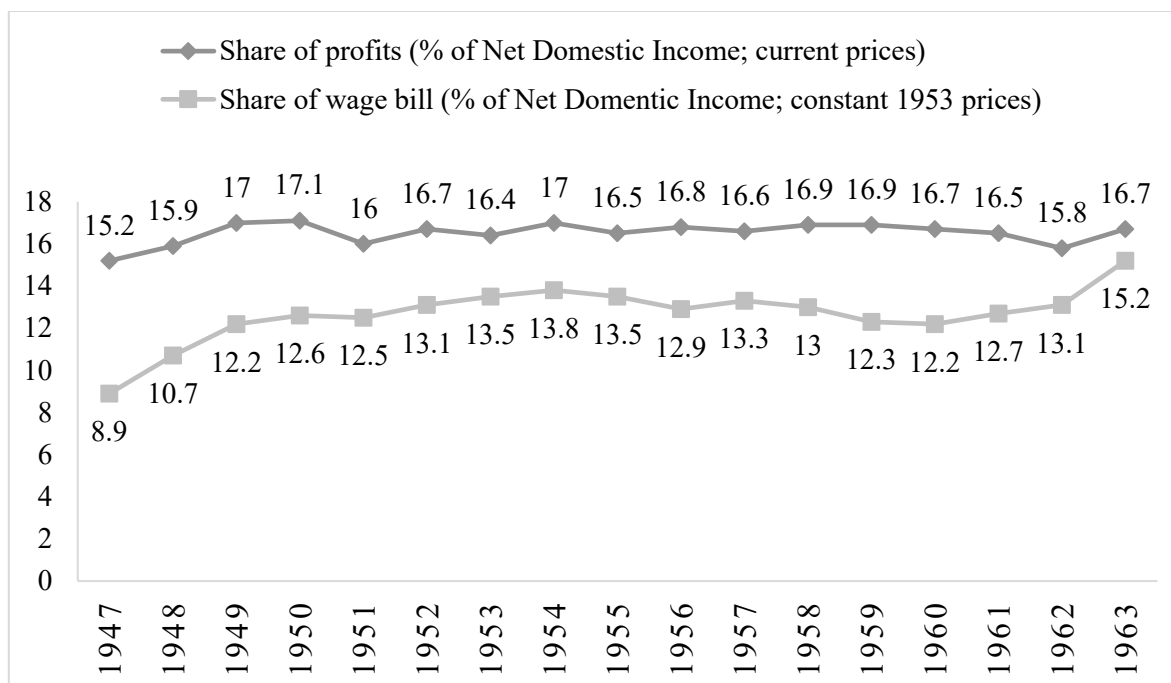
“While the workers’ mood cannot properly be called ‘extremely radical,’ there militancy, born of hope and illusion, had been strengthened by both the real and perceived electoral victories in December 1945. [...] The result was a general strike movement in February and March 1946 that involved, at its height, 100,000 workers in the metropolitan Sao Paulo region” (French, 1989: 20). These workers fought against not only repressed wages but also leading workers who blindly cooperated with the corporatist system at the expense of the interests of union members.

In 1953 approximately 300,000 workers, made up of textiles, metal, woodwork, and printing workers in Sao Paulo, were involved in walk-outs. These workers proposed a 60 percent rise in wages; however, employers could approve at most 20 percent. Vargas was cautious to handle the situation himself and pushed the governor of Sao Paulo – Lucas Nogueira Garcez – to mediate the unmatched demands between the two sides. After several disputes and negotiations, they reached a conclusion about a 32 percent increase in wages, with other conditions such as an extension of the increase to all industrial categories, compensated payments for those who joined the strike, and the immediate release of workers who were arrested (Alexander and Parker, 2003: 96–7).

In brief, the strategy of Vargas to internalize industrial workers into his patronage simultaneously created a chance for laborers to realize their own rights. The militant movements from 1945 to 1953 signaled to both the government and capitalists that corporatism alone could not subordinate mobilized workers. The only way that the peaceful labor market could take place was through the fair distribution of benefits generated from economic development. As illustrated in **Figure 7.6**, the benefits of industrialists, measured by the shares of profits and wage bills, increased together at a correlation of around 0.6. It also roughly shows

that the income shares of labor increased quickly from 8.9 percent of net domestic income in 1947 to 13.5 percent in 1953.²⁵⁶

Figure 7.6: Income shares of labor and capital in industry, 1947–1963



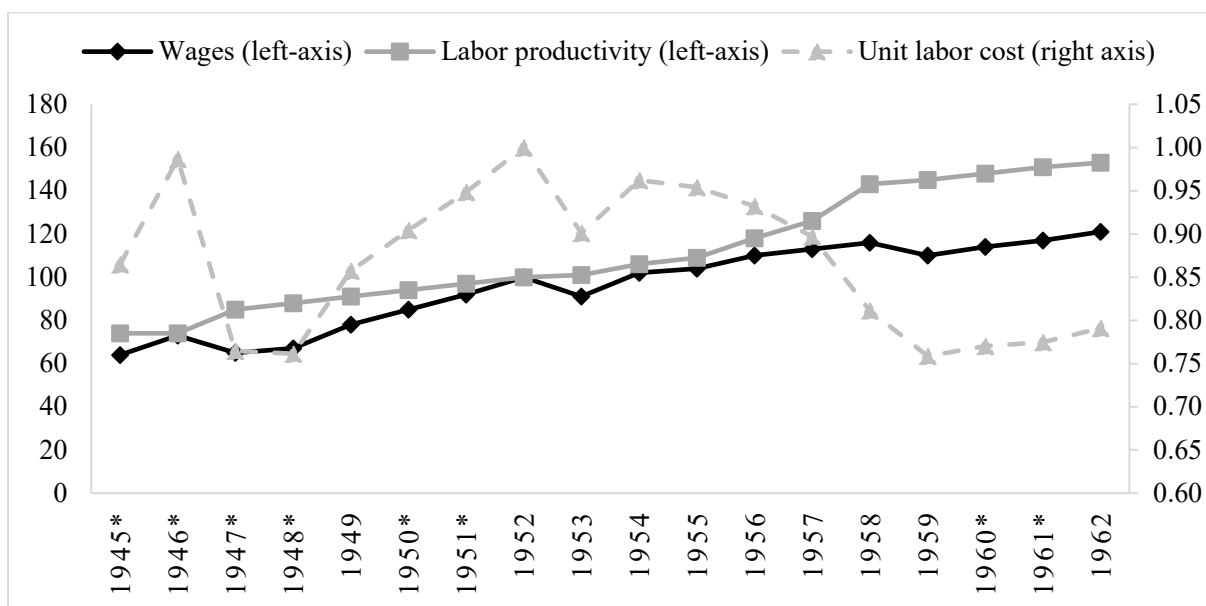
Source: Wallenstein (1980: 19)

Figure 7.7 and **7.8** shows real wages, labor productivity, and the unit labor cost of the Brazilian manufacturing sector between 1945 and 1962. The result was interesting. Except for three years (1947, 1953, and 1959), the average real wages of manufacturing workers continually increased. Especially from 1949 to 1952, wages increased by between 8.7 and 16.42 percent a year. Labor productivity had never grown at a slower pace than wages, which

²⁵⁶ Another example was the real minimum wage in Rio de Janeiro between 1952 and 1964. The government readjusted the wage every one or two years in order to maintain the purchasing power of unskilled workers around 45 *cruzeiros* (the 1964 constant price) (Wallenstein, 1980: 17). A similar effort existed in Guanabara and Sao Paulo (p. 18). When inflation decreased real wages, the state and capitalists increased wages against the trend and maintained the real value of money held by labor.

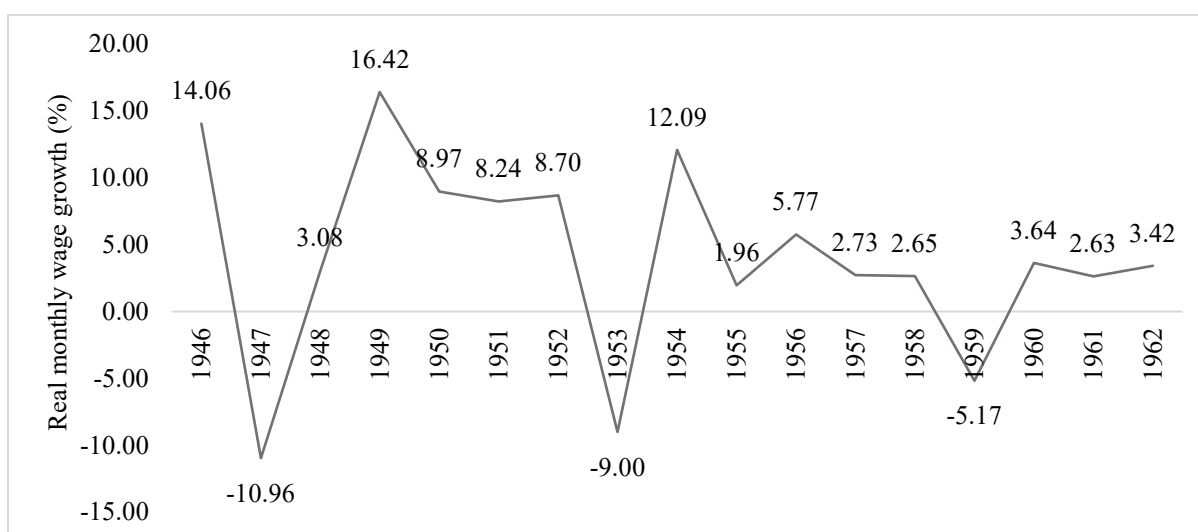
reflected the better performance of those workers. In this way, the unit labor costs of Brazilian manufacturing sectors decreased (more efficient) rapidly between 1952 and 1962.

Figure 7.7: Real wages index, labor productivity index, and unit costs in the manufacturing sector, Brazil, 1945–1962 (real wages and productivity index 1952 = 100)



Source: Colistete (2007: 110)

Figure 7.8: Real wage growth in Brazil, 1946-62



Source: Calculated by author based on data from Colistete (2007: 110)

These trends of the labor movements, wages, and labor productivity revealed two important messages.²⁵⁷ First, rising real wages, which were supported by the labor movements and maintained for more than a decade (1947–62), gave a strong signal to the state and capitalists. High wages were not a temporary phenomenon. Therefore, the state and capitalists needed to advance toward more capital-intensive production. Second, the increasing wages did not erode the efficiency of the manufacturing sector. Instead, laborers who gained more wages had greater productivity and thus reduced firms' unit labor costs.

Two Important Characteristics: Unskilled and Informally Employed

Another point worth mentioning is the structure of the Brazilian workforces. Labor forces expanded from 9.6 million in 1920 to 29.1 million in 1969.²⁵⁸ In other words, there was an approximate increase of 19.5 million workers over four decades. Surprisingly, while we can clearly see that the government supported industrialization and there was an expansion of industrial outputs, approximately half (9.2 million persons) and one-third (6.1 million persons) of these additional workforces went into the service and agricultural²⁵⁹ sectors, respectively. Only 21.54 percent of newly registered workforces (4.2 million persons) operated in the industrial sector (**Table 7.2**).

²⁵⁷ The same trend occurred in the dataset focused on the Sao Paulo area (Colistete, 2007: 111).

²⁵⁸ While this data goes beyond 1964, it could still reflect the trend and structure of the Brazilian labor forces before and the early military regime (1964–85).

²⁵⁹ Although the value of outputs generated by the industrial sector surpassed agriculture from 1949, the latter still employed a major share of the additional workforce. One of numerous possible ways to explain this phenomenon was that Brazil is a land-abundant nation; therefore, the agricultural sector played a crucial role as a labor-absorptive institution. In this case, if the industrial sector needed to expand quickly, it should pay higher wages for industrial workers to attract labor from the cultivated land. The higher wage rates would then create a positive result, that is, the motivation to increase the capital ratio and the adoption of labor-saving technologies. However, these productive processes were interrupted from the mid-1960s to the 1990s (which will be discussed in the next section)

Table 7.2: Structure of the workforce in Brazil in 1920 and 1969

Workforce	1920	1969	Changes
Primary (principally agriculture)	6.4 million (67%)	12.5 million (43%)	6.1 million (31.28%)
Secondary (principally industry)	1.3 million (13%)	5.5 million (19%)	4.2 million (21.54%)
Tertiary (principally service)	1.9 million (20%)	11.1 million (38%)	9.2 million (47.18%)
Total	9.6 million (100%)	29.1 million (100%)	19.5 million (100%)

Source: Modified from Evans (1979: 96)

This data leads us to a further important point, that is, that the largest share of newly employed persons went into the service sector. Indeed, some were high-paid professions such as lawyers, doctors, and financial employees. However, millions were self-employed and informally employed persons with short-term contracts (or even without any contract at all), such as domestic servants and other urban marginal jobs. These workers usually accepted low and inconsistent wages, but there were very high urban living costs. Therefore, their quality of life was “almost as close to subsistence as those of the agricultural labor force” (Evans, 1979: 95). These informally employed persons were also practically excluded from having voting rights in Brazilian politics (Armijo, 2005: 2017).

The inferior politico-economic conditions of informally employed persons led to the last issue discussed here – an education. Cynthia Veiga (2013) studied the schooling years of Brazilians between 1822 and 1889, and found that the “chances of attending school depended on the material condition.” Precarious living conditions decreased their chances and led

children away from a suitable education. Parents, for instance, “are not sending their children to school because children have to go to the city to sell milk” (p. 40). For this reason, in 1930, when the new republic was formed, 48.1 percent of the 6–10-year-old population had never attended school, and the average literacy rate was only 56.2 percent (Musacchio et al., 2014: 740).

Such a situation had persisted in the 1930s–60s. Inferior conditions discouraged poor families from investing in education. Even if they wanted to, limited financial support deterred them from doing so. The number of schooling years obtained by new generations therefore increased very slowly. For example, in 1980 the average schooling years of an older age group (aged 52–60), born between 1925 and 1933, was only around 3.05–3.58 years.²⁶⁰ At the same time, the younger generation (aged 22–30), born in 1955–1963, had around 5.9–5.99 years of schooling, on average. In other words, progress was too slow (Lam and Duryea, 1999: 167).

This low-educated status consequently led to low-paid employment. Based on a rough 1960 demographic census (**Table 7.3**), which is used approximately here to represent the wage proportion in the 1960s, we can see that unskilled and personal service labor had very low average incomes. White unskilled workers got an income of just 48.35 percent of skilled manual labor, assumed to be blue-collar industrial workers. The rate worsened in the case of Afro-Brazilians. At this point, the vicious cycle continued since low-income groups tended to drop out of school and have the informally employed status, which led them into low-paid work, which, in turn, decreased the chances of their children having an education.

²⁶⁰ This data only includes male groups. Female groups had a lower rate, from 2.66 to 2.99 years. However, in the new generation mentioned above, females had higher schooling experience of between 5.9 and 6.35 years.

Table 7.3: Average monthly income (1980 cruzeiros)

by occupation, color, and sex of urban workers aged 18 to 64, Brazil 1960

Categories	White	Afro-Brazilian
Women		
<i>White-collar</i>		
- Total average	9,624	6,256
- Manager/administrator	17,026	9,437
- Professional/technical	9,152	5,644
- Clerical	9,962	7,504
<i>Blue-collar</i>		
- Total average	3,676	2,222
- Skilled manual	5,624	4,141
- Unskilled/personal service	2,719	1,899
Men		
<i>White-collar</i>		
- Total average	17,590	10,181
- Manager/administrator	27,002	12,053
- Professional/technical	20,333	10,499
- Clerical	14,811	9,867
<i>Blue-collar</i>		
- Total average	8,103	5,963
- Skilled manual	8,451	6,349
- Unskilled/personal service	7,700	5,262

Source: Lovell and Wood (1998: 101)

In conclusion, before the military regime was established in 1964, the state in the Vargas era incorporated both industrial associations and organized labor in its patronage, and it actively created similar class-compromising schemes by increasing both profits and wage shares. Rising wages then created the chance to invest more in the capital-intensive sectors. At the same time, this section also demonstrated two inferior conditions embedded in the structure

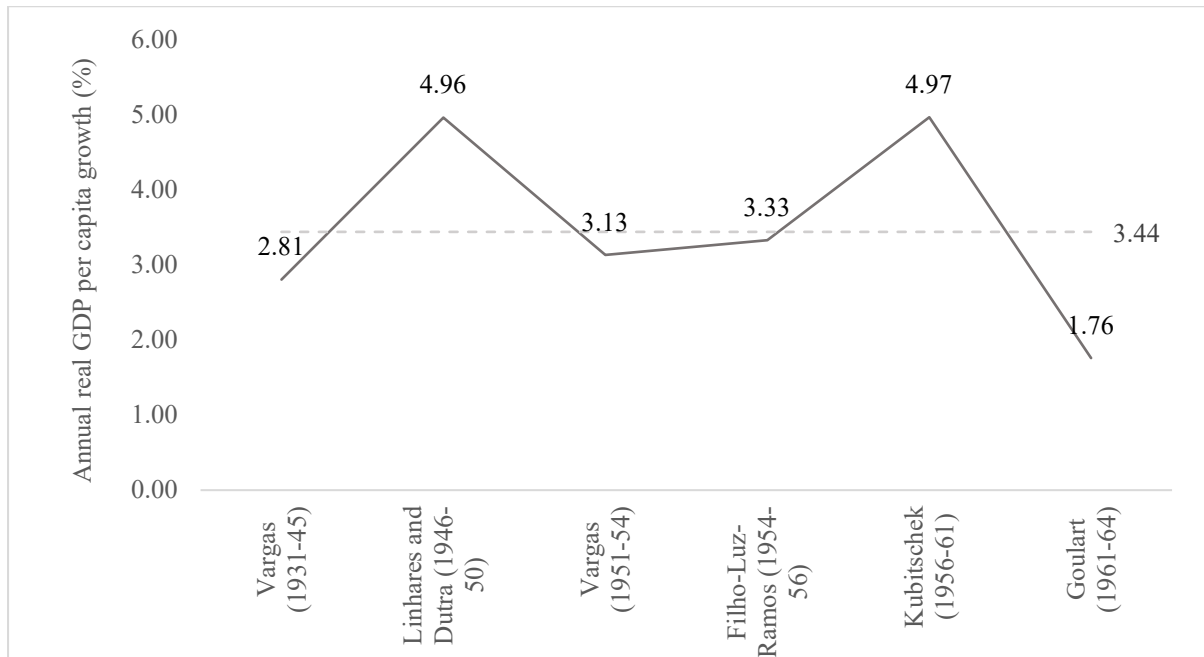
of the Brazilian labor market: (a) the high proportion of informally employed workers; and, (b) the low-educated workers. These two issues were closely interconnected.

Capitalists' Responses and Economic Performances before 1964

To evaluate the result of the administrative structure and economic policies between the 1930s and 1964, we can look at the macroeconomic indicators, including: (1) real GDP per capita; (2) a percentage of industrial production; (3) the composition of industrial production; (4) rate of openness; (5) the contribution of foreign capital; and (6) the role of state-owned investment. We shall see that the result of economic growth was not bad, even compared to international standards. However, the successful results could not be sustained.

As shown in **Figure 7.9**, between 1931 and 1964, real GDP per capita grew by an average of 3.44 percent a year. If we shorten the period covered only Vargas's government, the growth rate is slightly lower, at 2.81 percent (the first round) and 3.13 percent (the second round). During Kubitschek's term, from 1955 to 1961, the growth rate averaged 4.97 percent a year. However, the rate abruptly stagnated toward 1964, when an army staged a coup and established a military regime (1964–85). In brief, the policy endorsed from 1930 to 1961 made good progress before reaching the point of saturation in the early 1960s.

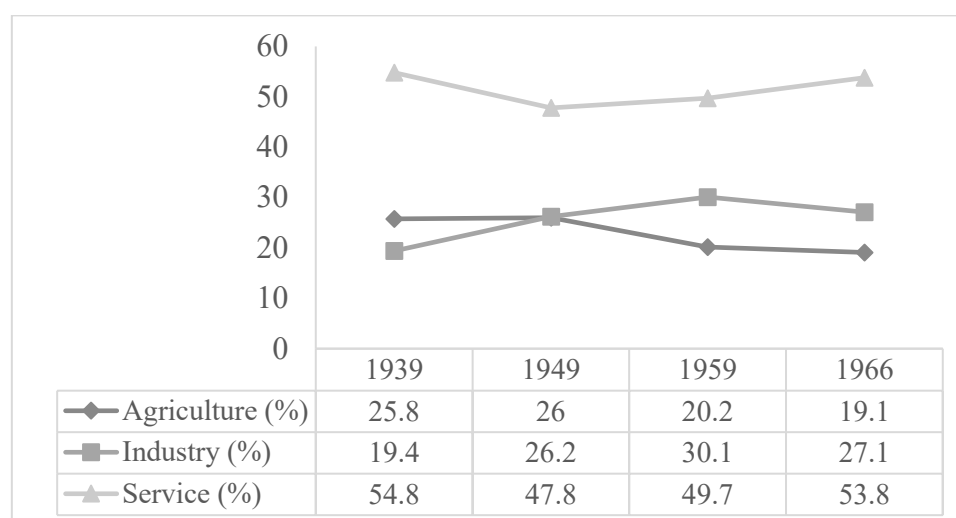
Figure 7.9: Real GDP per capita growth rates (percent per year), 1931–1964



Source: Calculated by author based on data from Araujo et.al (2008)

As mentioned above, Vargas and all of his successive presidents enthusiastically supported industrialization, as shown in **Figure 7.10**. Agricultural production was reduced from 25.8 percent of GDP in 1939 to 19.1 percent in 1966. In contrast, the ratio of the industrial sector surpassed agriculture in 1949 to reach 27.1 percent in 1966. The value of manufacturing outputs such as metal fabrication, electrical and transportation equipment, and chemical industries increased between 1940 and 1960. For example, the output of metal fabrication increased from 7.7 percent of total value-added in manufacturing to 11.9 percent. Chemicals and pharmaceuticals also increased from 10.4 percent to 13.4 percent during the same period (Evans, 1979: 72).

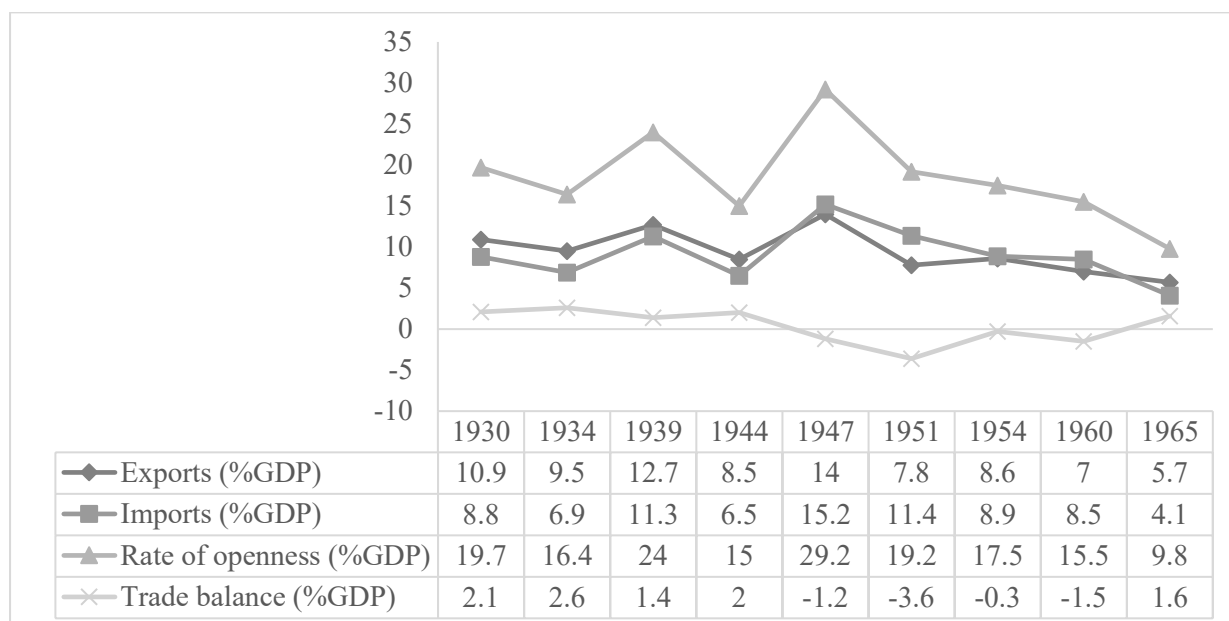
Figure 7.10: Changes in the sectoral composition of GDP, 1939–1966



Source: Data from Evans (1979: 71)

This increasing manufactured output was concentrated on the domestic market. The amount of exported manufacturing declined from 6 percent of total exports in 1946–8 to approximately 2 percent in 1960–2. Furthermore, as we can see in **Figure 7.11**, the proportion of exports and imports to GDP decreased significantly. Between 1930 and 1965, the number of exports declined from 10.9 percent of total GDP to 5.7 percent. Moreover, the number of imports contracted from 8.8 percent to 4.1 percent. These indicators reflected the shrinkage of Brazilian openness. At the same time, it portrayed the initial problem of the deficit trade balance because import values were generally higher than export values between 1947 and 1960.

Figure 7.11: Exports, imports, openness, and trade deficit as a proportion of GDP, 1930–1965



Source: Data from Evans (1979: 66)

While there was an inward-looking industrialization, due to capital scarcity, the government increasingly welcomed foreign capital. Generally, foreign capital flew into a sector that had four “high” characteristics – high scale, high concentration, high capital intensity, and high technology (p. 118). They were chemicals, machinery, electrical machinery, tobacco, rubber products, pharmaceuticals, and transportation equipment. These sectors accounted for around 41.9 percent of total value-added in 1968. Moreover, most grew very fast. Among these sectors, large Brazilian companies significantly formed a joint company in chemicals, machinery, and the electrical machinery sectors (**Table 7.4**).

Table 7.4: Importance and characteristics²⁶¹ of local and foreign-dominated industries

Industries	Percentage of value-added in 1968 ²⁶²	Scale ²⁶³	Concentration ²⁶⁴	Capital intensity ²⁶⁵	Importance of technology ²⁶⁶
<i>Local predominance</i>					
Leather products	0.6	52	70	56	43
Printing and publishing	3	46	79	68	86
Apparel and footwear	2.8	32	53	24	29
Wood products and furniture	4.2	52	37	58	100
Paper and paper products	2.7	100	109	100	114
Non-metallic minerals	5.8	63	113	58	171
<i>Local predominance with significant foreign participation</i>					
Food and beverages	15.6	65	72	102	100
Textiles	10.1	49	70	60	43
Metal fabrication	11.4	185	126	104	100
<i>Foreign predominance with significant local participation</i>					
Chemicals	12.1	345	126	186	471
Machinery	6	63	100	114	400
Electrical machinery	6.3	122	121	98	542
<i>Foreign predominance</i>					
Tobacco	1.4	190	126	62	100
Rubber products	2	552	184	132	229
Pharmaceuticals	5.5	154	44	80	1042
Transportation equipment	8.6	530	144	182	314

Source: Modified from Evans (1979: 117-118)

²⁶¹ All figures are relative to the median figures for all industries on a given measure, with the median considered to be 100 and the figure for an individual industry on a measure treated as a ratio to median.

²⁶² They do not add up 100 percent because 3.5 percent belonged to industries excluded from the table.

²⁶³ The scale was derived from Fajnzylber's "characteristic size" of establishment in terms of value of production, based on IBGE's 1967 *Producao Industrial*.

²⁶⁴ The ratio as a percentage of the top four firms' output to total production.

²⁶⁵ Estimated capital per worker by the 1960 industrial census.

²⁶⁶ This indicator was based on data of the US industry instead of Brazil. It measured R&D scientists and engineers per 1,000 employees taken from the National Science Foundation in 1974.

In Brazil a nationalistic idea stood still against times and situations. When foreign capital flooded into Brazil during Kubitschek's era and local capitalists were immature, state-owned enterprises and agencies played important roles counterbalancing foreign capital. The state's share of gross fixed capital investment rose from 25 percent during 1953–6 to 37 percent in 1957, and to 48 percent in 1960 (p. 93). They focused on security-related sectors (i.e., steel and refinery) and basic utilities (i.e., electricity and ports). These fiscal expansions steadily pushed the budget deficit ratio up from 2.4 percent in 1956–60 to 3.5 percent in 1960–7 (Auty, 1995: 260).

In summary, in the first stage of development after World War II, Brazil generated favorable economic growth and industrialization. Manufacturing production increased and was handled by three parties, the so-called *Tri-pe*. Local companies largely dominated in primary and light-manufacturing products. Multinational companies (MNCs) focused on capital-intensive industries. Finally, the state-owned enterprises (SOEs) jointly formed the capital-intensive industries, security- and utility-related sectors. These three parties were framed under the ISI policies and gradually concentrated their efforts on the domestic market. At the end of the period, in 1964, there were signs of disequilibrium – slow growth and double deficits (trade and fiscal).

The Economic Crisis in the Late 1960s and the 1964 Military Coup

The high-growth phase of the 1950s was followed by critical problems in the early 1960s. They were: (1) double deficits, (2) overvalued exchange rates, (3) higher external debt, (4) high inflation, and (5) lower rates of profits in general. These factors interacted with one other and had unfavorable consequences.

First of all, there was a persistent trade deficit. For this reason, Brazil's net balance of payment was negative and foreign currency was continually shortened. The ISI policy and over-valued exchange rates worsened the situation because the exchange rate increased the incentive for imports and reduced the incentive for exports. Subsequently, the trade deficit was widened. At the same time, foreign investors and commercial banks tended to borrow from cheaper external sources because of low domestic saving, high interest rates (limited at 12 percent a year)²⁶⁷ (Ayres et.al., 2018: 6), and overvalued exchange rates. Therefore, the total external debt reached nearly 20 percent of GDP in 1960 and maintained more than 10 percent of GDP toward the end of the democratic period in 1964 (p. 37).

Concurrently, between 1960 and 1964, on average, the primary fiscal deficit accounted for around 2.9 percent of GDP. If we include obligations of interest payments and SOE investments, the deficit increased to 3.7 percent of GDP (p.34). Because the “markets for government debt securities were underdeveloped” (p. 3), the deficits had to be financed by *seigniorage* revenues, or, to put it simply, printing money without any backed precious reserves. The *seigniorage* value increased to a peak in Brazilian history at 4.1 percent of GDP (p. 34), which pushed inflation rates up from around 30 percent in 1960 to nearly 100 percent in 1964. These high inflation rates favored debtors because the “real value” of those debts was largely reduced by inflation.²⁶⁸ This, in turn, reinforced the indebtedness of society.

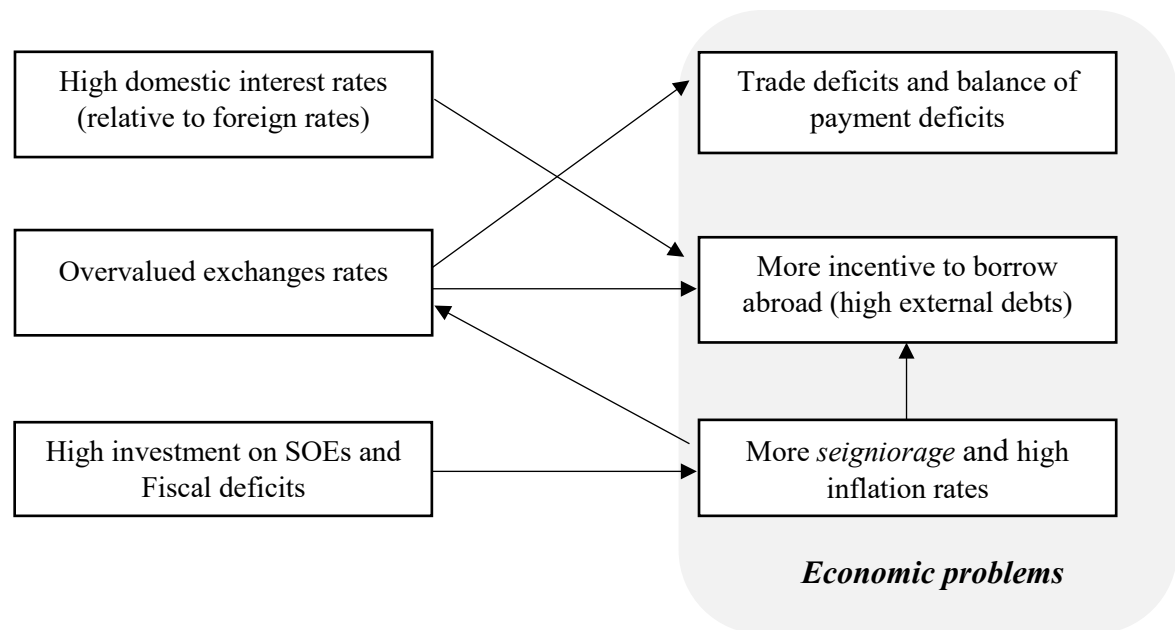
In **Figure 7.12** we can see that the problems decreased economic growth, and the rate of profits in general, and triggered political demand for change. There was a rumor that President João Goulart complied with the communist ideology and political bloc. Hence, broadly speaking, a pro-market alliance anxiously requested political intervention from the army. A hard-liner armed force, which had never disappeared from Brazilian politics and was

²⁶⁷ US Federal funds rate was 3.5 percent a year in 1964 (Macrotrend, accessed June 16, 2019).

²⁶⁸ The commercial banks also had an incentive to borrow foreign currencies to re-lend to domestic debtors.

always prepared for political interference, stepped in and seized office from Goulart's government in 1964. This coup opened up a new phase of progress, which instantaneously generated the "Brazilian Miracle (1964–70s)" and "Brazilian Crisis (1980s–90s)."

Figure 7.12: A summary of Brazilian economic problems in the early 1960s



Chapter 8:

Brazilian Developmental Labor

Triggered the Bifurcated State I

The previous chapter showed how Brazil generated step-by-step economic growth and industrialization between 1930 and 1960. This progress, similar to East Asian experiences, continually created more active labor movements and higher demand for increasing real wages. This chapter, though, will show that the story of Brazil is more complicated because labor movements unevenly emerged at the time. These uneven movements improved wages and stimulated both the state and capitalists to upgrade their policies and business strategies toward a higher capital ratio and technologies between the 1960s and the 1980s in only strategic sectors. Moreover, the progressive movements as well as economic prosperity were interrupted by the economic crisis in the 1980s.

8.1 Labor Movements during the Brazilian Miracle (1964–1985)

Labor Movements, Policies, and Wage Patterns

Generally, after the military government seized office in 1964, it needed to consolidate political power and bring back social order. The post-1964 government also tried to do this by controlling the militant labor unions and, at the same time, broadening the state corporatist approach to include rural workers. There were two important policies for labor.

First, in 1964 the government established a guideline for wage adjustment (wage indexation) determined by both the inflation rate and productivity (Hoffmann, 1976: 83;

Macedo, 1977: 123). The political will of this policy was trying to restrict labor movements and disputes related to wage issues, particularly when the inflation rate was high. The index was a built-in stabilizer that automatically helped to restore the real value of wages.²⁶⁹ However, it was generally criticized because of an underestimation of inflation (thus, it diminished the real value of adjusted wages). Also, it normally covered only civil servants and unskilled workers in the formal sector. For example, in the early 1970s a survey of “Brazilian households, covering 26 million people with monetary income, showed that 28 percent had a monthly monetary income below half of the legal minimum wage and that 52 percent received up to the legal minimum” (p. 119). This data reflected the fact that coverage of the index was limited to around 20 percent of workers with monetary incomes.

Second, in 1965 the government modified *the Rural Worker Statute* and allowed both employees and employers to establish a *rural union* (Houtzager, 2001: 17). Many of these rural unions “became quasi-state agencies that concentrate primarily on the delivery of public services” (p. 20). The rural union expanded very fast (**Table 8.1**).

Table 8.1: Rural unionization in Brazil, 1960-1980

Years	Number of unions	Union membership (in thousand)	Unionization rates	
			<i>Demographic census</i>	<i>Agricultural census</i>
1960	14	NA	NA	NA
1970	1,066	1,500	11%	9.4%
1980	2,254	6,898	54%	40%

Source: Houtzager (2001: 21)

²⁶⁹ Moreover, the index was used by the labor court as a benchmark when there was a wage dispute in the court.

From 1960 to 1970, the number of registered unions skyrocketed from just 14 to 1,066, which equated to approximately seventy-six times more. In 1980 the number doubled to 2,254 unions, with a sizable number of members. In terms of unionization rates, members of the rural unions represented 54 percent of the demographic census and 40 percent of the agricultural census in 1980. The wages of these rural workers also increased substantially and surpassed the minimum wage in 1972 (**Table 8.2**).²⁷⁰

Table 8.2: Wages of rural workers and minimum wages in Sao Paulo, 1960–1974

Years	Rural worker's wages (Cr\$) (1)	Minimum wages (Cr\$) (2)	(1)/(2)
1960	3.42	6.64	0.52
1961	4.44	10.23	0.43
1962	6.69	13.21	0.51
1963	10.86	21	0.52
1964	22.92	39.03	0.59
1965	41.07	62	0.66
1966	53.61	81	0.66
1967	74.76	101.5	0.74
1968	98.61	124.07	0.79
1969	116.25	147.2	0.79
1970	154.05	174.27	0.88
1971	193.35	212.8	0.91
1972	257.4	254.4	1.01
1973	340.5	297.93	1.14
1974	475.5	355.2	1.34

Source: Macedo (1977: 121)

²⁷⁰ It is interesting to see the ratio in column (1)/(2) of the table. To some extent, because of underpaid minimum wages (determined by underestimated inflation in the wage guideline) and supported rural unions, the wages of rural workers increased substantially between 1964 and 1974. By 1972, on average, rural workers had wages that were even higher than the minimum wage.

In fact, the military government resembled what Vargas did in the mid-1940s, which was trying to patronize targeted groups of workers. These beneficial rural workers and rural unions normally cooperated with the military government, the so-called “the cooperative wing.” However, similar to Vargas, the military government could not control all of the social forces and saw the emergence of autonomously militant unions, called “the popular wing.” These newly emerged unions and their leaders worked side by side with progressive catholic priests to fight for rural peoples’ livelihood, and even for democratization. By the late-1960s, the motto “Bring the Church to the people” was commonly used among rural workers’ leaders (Houtzager, 2001: 24).²⁷¹

These movements in rural areas also motivated the movements of industrial workers in large cities. “The general climate in the country in 1968 was propitious for protest movements. In addition to the strike in Contagem and the May Day demonstration in Sao Paulo, there were massive student demonstrations in various cities of Brazil” (Almeida and Lowy, 1976: 113). As we can see in **Figure 8.1** and **8.2**, these movements correlated with the pattern of real wages of industrial workers. From 1964 to 1967, the real wages of industrial workers decreased continually because of one-side oppressive measures of the authoritarian government. This pattern reversed in 1968 when the labor movement exploded. This upward trend could be maintained until 1970. Also, the wage guideline was revised in 1968 to match the minimum wage closer to the real inflation rate (Macedo, 1977: 124).²⁷²

²⁷¹ “It adopted the legal category rural worker but defined the small farmers as part of the broader workers’ movement. Class was defined not in conventional sociological terms, but as broadly as possible – that is, as the poor, the oppressed, and the working people (which included fishermen, beggars, and industrial workers) who stood in direct opposition to the rich, the dominant class, and the capitalists” (Houtzager, 2001: 24–5)

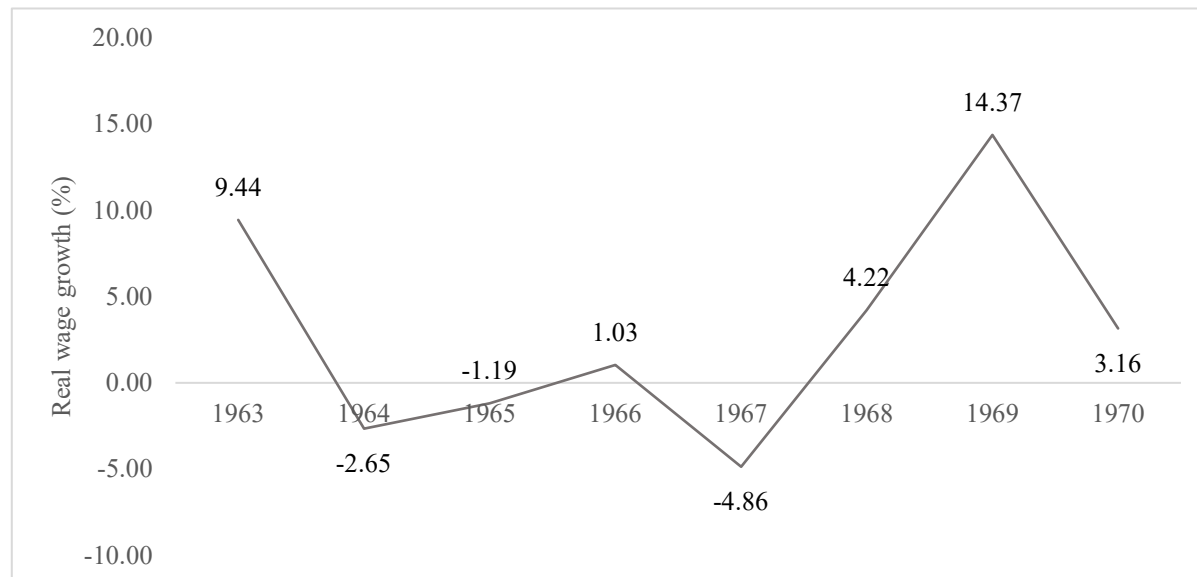
²⁷² According to Erickson and Peppe (1976: 23), the real monthly minimum wage in Guanabara dropped continually from 100 in 1962 to just 69 in 1971. After labor movements regained bargaining power and organizing capability in the early 1970s, the index slightly rebounded to 75 in 1973 and was maintained. While this improvement was not huge, it reflected the fact that the downward trend was interrupted.

Figure 8.1: Indexes of real wages in the manufacturing sector, Brazil, 1959–1970²⁷³



Source: Macedo (1977: 127)

Figure 8.2: Real wage growth in the manufacturing sector, Brazil, 1963–1970



Source: Calculated by author based on data from Macedo (1977: 127)

²⁷³ All of indexes 1–5 were real wages. They were calculated based on different deflators, namely: (1) the cost of living in Rio de Janeiro; (2) the cost of living in Sao Paulo computed by DIEESE; (3) the cost of living in Sao Paulo computed by *Conjuntura Economica*; (4) the wholesale price index of industrial products; and (5) the general price index.

When the government realized it was going to liberate untamed forces, the labor policy switched abruptly to one of oppression. By 1970 “the entire left as well as students and workers’ organizations were harshly repressed” (Almeida and Lowy, 1976: 115). The vast majority who were involved in the 1968 demonstration, or who took part in underground movements between 1968 and 1970, were assassinated, imprisoned, and tortured (p. 116). Although the cruel oppression was continually implemented, the popular-wing workers, both in rural–agricultural and urban–industrial areas, regained their roles in 1973 because the government falsified the wage index and reduced real wages by around 34.1 percent in the early 1970s.²⁷⁴ This scandal enflamed negative attitudes among workers against the government.

One of the most important unions in Sao Paulo, which represented approximately 250,000 workers in the automobile, electrical, and chemical industries, clearly declared its intention to fight for wage recovery in court (Moisés, 1979: 52). However, from workers’ perspectives, the court process and national movements were not sufficient. In the 1970s, “according to the reports which appeared in the labor press, there has been a constant increase in the number of factory commissions in firms of the greater Sao Paulo area in the past few years. The main activity of these commissions is to organize the workers to resist the government wage-squeeze policy²⁷⁵ and increase the cost of living” (p. 63). They also set out to fight for autonomous movements instead of depending on the rigid bureaucratic structure of the legally approved unions.

²⁷⁴ “Since the early 1970s, the *Departamento Intersindical de Estadística e Estudos Socio-Economicos* (DIEESE), a consulting agency maintained by the Sao Paulo unions, had claimed that the inflation data used by the government to establish wage increases was falsified” (Moisés, 1979: 51).

²⁷⁵ 97 percent of labor resistance at grass-roots level between 1973 and 1977 was related to wage issues (demand for wage increases, protest against wage delays, against wage reduction, and against loss of wages) (Moisés, 1979: 66).

Factory-level resistance took place at Villares Steel and Volkswagen in Sao Paulo in the early 1970s. These two firms were operating in strategic sectors, so the movements were critical for both the state and capitalists. At the Villares plant, for instance, around 10,000 workers declared a strike against the requirement to do overtime work. Also, workers demanded a 10 percent increase in wages. After a couple of days, the damage of the work delay was higher than the cost of the wage increases. For this reason, they finally reached a settlement. A similar phenomenon also occurred in the automotive sector, in the Mercedes-Benz and Ford plants²⁷⁶ (Almeida and Lowy, 1976: 117). These phenomena confirmed that the institutional structure, established by the government to directly control negotiations between employers and employees, was shaken. Together, the falsified wage index and the decline of the real minimum wage were stopped.

In the late 1970s labor movements could no longer be suppressed. “The military itself is beginning to show concern about the lack of legitimacy of the regime. Some of its oldest leaders exposed the impresses and divisions which existed within the military and urged some kind of institutional solution which would allow the military to withdraw from the government while preserving its image (and certainly its function) as guardian of order and security” (Moisés, 1979: 56). In 1978 a young militant union leader named Lula da Silva successfully promoted mass striking and declared work stoppage in Sao Paulo. Also, rural unions in Pernambuco declared strikes in 1979 (Welch, 2006: 40).

As shown in **Table 8.3**, toward the end of the regime in 1985, the number of strikes increased. The total number of strikes in urban regions increased from 118 incidents in 1978 to 619 incidents in 1985. Moreover, the amount of strikes initiated by the mid-range salaried

²⁷⁶ In the case of the Volkswagen plants in Sao Bernardo, 3,000 tooling-section workers rejected to work any extra hours by delaying tasks. This reduced production from 1,700 to 1,000 finished vehicles. Similar occurrences took place in Benz and Ford plants. However, the latter case failed to materialize workers’ demands because of their lack of experience in organization (Almeida and Lowy, 1976: 117).

workers increased from 6.8 percent in 1978 to 34.1 percent of total incidents. The service workers initiated around 11 percent and 20.2 percent of total incidents in 1978 and 1985, respectively.

Table 8.3: The number of strikes by worker category, urban region, 1978–1986

Worker category	1978	1979	1980	1981	1982	1983	1984	1985	1986
Industrial	84	77	43	41	73	189	317	246	534
Civil construction	8	20	19	7	4	10	18	23	45
Mid-range salaried	8	55	43	48	31	85	84	211	237
Service	13	50	21	20	25	47	62	125	187
Other	5	44	18	34	11	16	11	14	1
Total	118	246	144	150	144	347	492	619	1,004

Source: Antunes and Wilson (1994: 26)

In this way, if industrial workers could mobilize from the mid-1940s and rural workers took a stronger stance in the 1970s, the roles of mid-range salaried workers and service workers (presumably, urban low-paid workers) rose significantly in the early 1980s, and 63.4 percent of the strikes focused on wage readjustment (Antunes and Wilson, 1994: 33). Taking into account all of the radical reactions of the labor movements to the repressive measures of the military regime, Brazilian workers successfully pulled real wages up by substantially more than 300 percent between 1970 and 1985 (Braumann, 2004: 124). The real cumulative average growth rates of this period was approximately 9.68 percent per year, which was very high.

In conclusion, there were rich and dynamic pictures of labor movements between 1964 and 1985. At the dawn of the military regime, the government tried to patronize workers, especially in rural areas. However, in the late 1960s the government realized that its efforts could not tame all of the labor organizations. There were some rural and industrial workers that did not belong to the centralized system of labor organizations, and intended to fight for autonomous movements and fair wage adjustments against the falsified wage guidelines. These movements, after a brief period of repression, were able to regain their strength in the mid-1970s. Also, the newly emerged movements of mid-range salaried and service workers played greater roles in the early 1980s. Most of these movements concentrated their goals around wage issues. These explicit goals and outcomes of the labor movements signaled to both government and capitalists acting radically to upgrade the capability and technologies to maintain overall economic competitiveness. I shall illustrate policy changes and technological upgrading in the following sections.

8.2 Policies of the Military Government between 1964 and 1985

As soon as the military successfully staged a coup and seized power, it solved two problems: first, the economic recession caused by fiscal imbalance and price instability in the early 1960s; and, second, the initial signs of social disorder caused by economic inequalities. In 1964 the military government quickly implemented a stabilization package to control the double deficits and high inflation. After these problems had been controlled, urban and rural labor movements resumed bargaining power in the early 1970s. Newly emerging labor movements mobilized in the early 1980s. In this way, the military government heavily pushed further industrial upgrading policies. In this section, I shall broadly illustrate these efforts between 1964 and the 1980s.

First, a **stabilization package** named “the Government Economic Action Plan (PAEG)” was implemented in 1964. “The government tackled that [economic] problem from two fronts: a fiscal reform to decrease government deficits and a financial reform to create other financing options” (Ayres et al., 2018: 6). On the fiscal side, the government imposed new taxes (i.e., value-added tax) and increased existing tax rates. The result was impressive. Tax revenue increased by around 23 percent and the deficit decreased considerably, from 3.2 percent of GDP in 1960–4 to 1.5 percent in 1965–72 (p. 34). The total external debt consequently reduced from nearly 20 percent of GDP in 1960 to around 10 percent in 1970 (p. 37).

On the financial side, the government tried to reorganize various monetary institutions. For example, before 1964, the Bank of Brazil concurrently acted as a commercial bank, development bank, and the central bank because it was allowed to issue money when it wanted. After 1964 the Central Bank of Brazil (CBB) was established under the supervision of the National Monetary Council (NMC). The government then created a linked account between the central bank and the Bank of Brazil, named “*Conta de Movimento*.” Under the new system, “the Bank of Brazil could withdraw funds from that account whenever prompted to further extend financing to sectors or firms targeted by economic policy, and the central bank would automatically provide those funds through the monetary base” (p. 7).

This new system legally limited the Bank of Brazil’s ability to carelessly issue money, although the bank still had de facto power to use funds from the *Conta de Movimento* account and induced a higher monetary base at the end. Nonetheless, the new system set a foundation for more systemic control of *seigniorage*. Together, principally, the NMC had well-monitored information to govern the monetary policy and commercial banks, including the Bank of Brazil.

This was a progressive step for Brazilian monetary policy. As a result, *seigniorage* revenue decreased from 4.1 percent of GDP in 1960–4 to just 1.9 percent in 1965–72 (p. 34).²⁷⁷

Outside the PAEG plan, the government also actively handled the exchange rate with care. The inflation rate in 1964, around 100 percent a year, caused the real exchange rate of Brazil to appreciate, which deteriorated the trade balance. In this way, the government frequently and hugely devalued the currency whenever the real exchange rate appreciated beyond a critical threshold (Bonomo and Terra, 1999: 7). Together with higher restrictions on imports and protective tariff rates, the trade balance flipped from negative to positive (mostly) in the second half of the 1970s. After the trade and current account balance returned to a stable level, the status of the exchange rate policy changed from stabilization to growth orientation.

Second, in the late 1960s, when the Brazilian economy was stable, the government enacted a set of **export-promotion policies**. Selected items of export subsidies are shown in **Table 8.4**.

Table 8.4: Export subsidies in Brazil, 1969–1985 (percent of exports)

	Duty drawback	BEFIEX	Tax credit premium	Credit subsidies	Income tax exemption	Total
1969	4	--	6.7	4.1	0	14.8
1970	4	--	13.5	7.5	0	25
1971	4	--	13.2	7.8	1.3	26.3
1972	4.9	n.a.	16.3	8.2	1.3	30.7
1973	7.2	n.a.	16.2	6.5	1.3	31.2
1974	12.6	n.a.	12	6.1	1.8	32.5
1975	8.3	n.a.	12.1	11.5	1.7	33.6

²⁷⁷ It should be noted that another mechanism controlling the inflation rate during the military regime (1964–85) was “wage repression.” However, I shall discuss this issue later with labor politics in the 1980s.

	Duty drawback	BEFIEX	Tax credit premium	Credit subsidies	Income tax exemption	Total
1976	11.8	3.6	11.7	15.9	1.3	44.3
1977	12.6	4.6	12.4	19.6	1.5	50.7
1978	9.1	5	12.8	17	1.8	45.7
1979	10.5	5.4	12.8	13.9	2.1	44.7
1980	9	8.1	0	2	1.9	21
1981	9.4	10.2	6.5	18.7	1.8	46.6
1982	10.3	7.7	9.1	21.7	1.6	50.4
1983	8.6	4.9	7.8	9.3	1.6	32.2
1984	9.1	4.3	7.8	2.7	1.6	25.5
1985	9.1	5.9	1.4	3.6	1.6	21.6
Average	8.5	5.97	10.14	10.36	1.42	33.93

Source: Modified from Rodrik (1993: 17)

One of the most recognized programs was founded in 1972, namely, the Fiscal Benefits for Special Export Programmes (BEFIEX), the long-term contract between the state and participating firms entailing their export commitments in 10 years (Rodrik, 1993: 18). “The contracts were negotiated with the BEFIEX administration on the basis of detailed information on firms’ activities and strategic plans. The incentives, in turn, typically included 90% reduction of import duties and the industrialized products tax (IPI) in imported raw materials, parts, and components, and other intermediate products; exemption from the ‘similarity’ test; and income tax exemption on profits attributable to exports of manufactured products” (p. 19).

The results of the BEFIEX were impressive, especially in the automotive sector, supported by the pockets of competence (pilot agencies) and the new exchange rate policy (i.e., frequent devaluation of nominal rates in order to maintain the real exchange rate value).

The third set of policies was **infrastructural projects**. In the 1970s President Emilio Medici initiated the First Program of National Integration (PNI). One of the most famous (or infamous) projects under the PNI was the Trans-amazon Highway. The government said that “It was the equivalent of putting a man on the moon” (Moran, 2016: 210). This claim was not exaggerated because it required quick action to build a 5,400-kilometer road through territories across Brazil that had not previously been surveyed (p. 208). It offered incentives (i.e., lands and subsidies) to sellers. For this reason, a huge exodus of more than 80,000 persons needed to be handled properly between 1970 and 1985 (p. 207), which required both unimaginable effort and financial support from the state.

From a political dimension, the government wanted to integrate marginalized areas into the central management as part of Brazilian nation-building. The motto, “*voce constroi o Brasil*” (You build Brazil!) was sung loudly. In terms of economic growth, the government wanted to explore potential minerals such as iron ore, copper, gold, silver, and so on.²⁷⁸ Serra dos Carajás, for instance, was developed as one of the biggest mines in the world. The largest reserves of wood, with an estimated yield of around 178 cubic meters per hectare, were also found in the project’s areas (p. 209–10).

Lastly, from the social and redistributive dimensions, the government aimed to use the PNI and also the Trans-Amazon highway to distribute development to marginal areas. A targeted group that the state wanted to lure into the program was the have-nots who lived in the north-eastern states. These have-nots suffered from chronic structural inferiority (i.e., a lower level of economic development and lesser political influence) and unanticipated shocks (i.e., the 1970 drought). One supporters of the project even said, “The soil [in the project] was

²⁷⁸ Many multinational companies also supported and engaged in the project. For example, “Holland’s Bryunseel and Germany’s Volkswagen acquired rights to exploit lumber, as did Georgia Pacific and Weyerhaeuser. Alcoa began to build a processing facility to exploit a bauxite-rich areas. King Ranch and Swift-Armour began to look at the potential for beef production for export” (Moran, 2016: 208).

fertile and produced cotton balls the size of grapefruits” (p. 210) in order to convince the have-nots.

Beyond the PNI and Trans-Amazon highway, the military government invested widely in other infrastructure such as roads, energy, and telecommunications. Most of these investments peaked in the second half of the 1970s. Although investment in roads and telecommunication dropped markedly in the 1980s, when signs of an economic slowdown were evident, investment in the energy sector was still maintained (Ferreira and Araujo, 2006: 5). To a large extent it consisted of high expected growth continuing from the decade of miracles (1964–74), an intention to decrease the dependency on imported oils from the Middle East, and a reduction in long-term fragility responding to external shocks.²⁷⁹

Finally, there was **an investment promotion** classified by the strategic sectors. Again, I shall reiterate that the organized labor movements in 1945 and the early 1950s triggered changes in wage patterns and wage shares. Real wages increased substantially between the 1950s and 1960s. This incentivized the state to push its ambitious plan named the Goal Plan and other sectoral development such as automotive, steel, and petroleum. These efforts were interrupted by the 1964 crisis and the coup. The military government speedily resumed executing capital- and technology-intensive industrialization as soon as the crises ended.

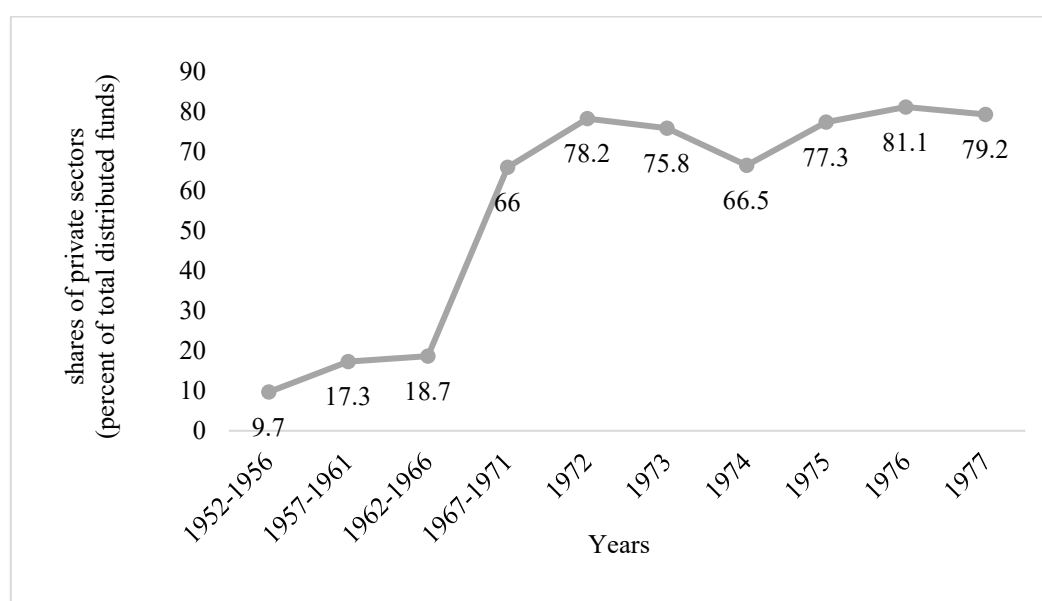
In this process, the pockets of competence, especially the National Bank for Economic Development (BNDE), played a crucial role. After 1964 the government reorganized the BNDE in many ways. A source of funds, for instance, was changed from “the additional tax” to 20 percent of all income tax receipts in 1964. This quickly shifted to being based on a financial transaction in 1967. At the same time, the BNDE was transferred from the Ministry

²⁷⁹ While a study of Ferreira and Araujo (2006) shows that investment in this infrastructure could “pay for itself” in the long run (based on various assumptions), it could lead to short-term economic problems if a proper macro-economic management were not held.

of Finance to be supervised by the “Planning Ministry” (Baer and Villera, 1980: 430), which reflected that the government wanted to link development banks to the national economic plan.

Under the new governance, the BNDE changed its investment strategies. First, it shifted from focusing mainly on state-owned enterprises to the private sectors. Its funds that were distributed to the private sectors increased from just 18.7 percent of total funds in 1962–6 to 81.1 percent in 1976 (**Figure 8.3**), which shows that the BNDE was cautiously concerned about excessive SOE and MNC domination of the economy.²⁸⁰ In terms of influence, the BNDE quickly increased its share in gross capital formation from just 2.7 percent in 1964 to 6.6 percent in 1965 and 9 percent in 1976 (p. 433).

Figure 8.3: Distribution of BNDE financing to private sectors, 1951–1977



Source: Baer and Villera (1980: 431)

²⁸⁰ Beneficiaries of the BNDE were concentrated among domestic private enterprises to support their relative size vis-à-vis state and multinational companies (Baer and Villera, 1980: 435).

Finally, in terms of coverage, while 68 percent of loans distributed in 1965 were absorbed by the steel sector, the fund was largely diversified afterwards.²⁸¹ In 1969 the steel sector got only 10.2 percent of total funds (p. 430). In order to handle the broader strategic sectors, the BNDE set up several important programs, which are selectively illustrated in **Table 8.5**. The supportive schemes related to SMEs (i.e., FIPEME), capital-intensive industries (i.e., FINAME, PROCAP, FIBASE, and EMBRAMEC), and the general sectors (i.e., FMRI and IBRASA). These programs were complemented with strong and capable enough pilot agencies to push sectoral development.²⁸²

Table 8.5: Development programs conducted by the BNDE between 1964 and 1980

Year	Programs	Objectives
1964	FINAME (Fund for the Acquisition of Machinery and Equipment)	Assisted firms in financing the purchase of machinery
1965	FIPEME (Financing for Small and Medium-Sized Firms)	Assisted SMEs to reequip and expand their operations
1965	PROCAP (Program for the Stimulation of the Capital Market)	Assisted and endorsed firms to raise funds through the stock market
1970	FMRI (Fund for the Modernization and Reorganization Industries)	Conducted special studies to, for example, increase plant's efficiency, assist in selection of technology, and examine sectoral problems

²⁸¹ After two decades (1948–67) of investment in the steel industry, the total capacity of the industry expanded from 2.4 to 4.1 million tons. The pace of development was not bad, but it was still slower than India and Korea, within a similar time frame (D'Costa, 1999: M4-5).

²⁸² The military government focused on three sets of industry: energy-saving industries (i.e., agro-based alcohol and influx combustion engines), military-preferred industries (i.e., aircraft and computer), and capital- and technology-intensive industries (i.e., automobile). I shall discuss sectoral policies together with capitalists' responses in each sector in the next part.

Year	Programs	Objectives
1974	FIBASE (<i>Insumos Basicos S.A.- Financiamento e Participacoes</i>)	Supplied basic industrial inputs by aiding private sectors producing, for instance, fertilizers, nonferrous metals, chemicals and so on
1974	EMBRAMEC (<i>Mecanica Brasileira S.A.</i>)	Promoted basic capital goods firms
1974	IBRASA (<i>Investimentos Brasileiros S.A.</i>)	Supported firms by subscribing to ordinary or preferential shares and debentures.

Source: Baer and Villera (1980)

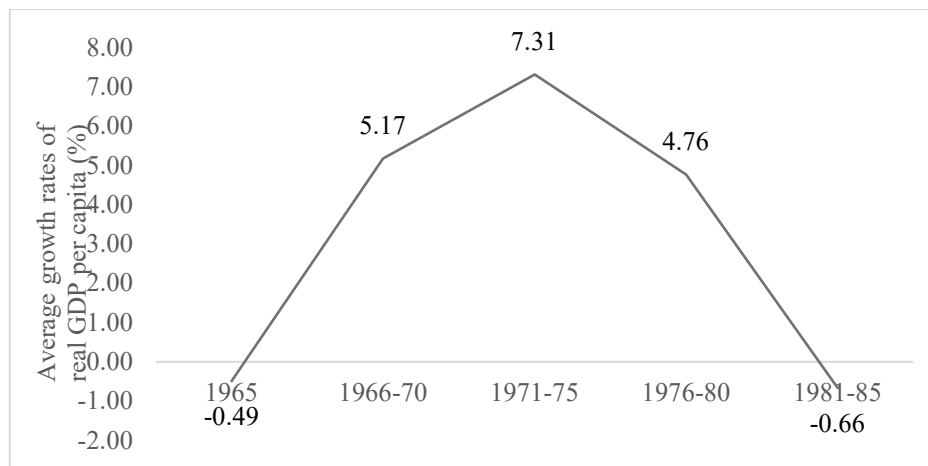
8.3 Economic Consequences from 1964 to 1985

Capitalists' Responses

As we can see in **Figure 8.4**, the real GDP per capita of Brazil improved progressively from the beginning of the military government in 1965 to 1980. Based on another database collected by the World Bank, Brazilian GDP per capita quoted in current US dollars was higher than South Korea until 1982. This reconfirmed that strong and capable “enough” pilot agencies (defined by pockets of competence and bureaucratic rings) could drag Brazil out of a low-income status. However, we can see that, in the early 1980s, Brazil’s economy faced a ceiling and GDP growth encountered a recession.

Before we discuss the crisis in the 1980s, I shall elaborate on some successful efforts in three broad sectors in the 1970s.

Figure 8.4: Average growth rates of real GDP per capita in Brazil, 1965-1985



Source: Calculated by author based on data from Araujo et. al (2008: 579)

The Energy-related Industries

The industries related to energy-exploration include petroleum, agro-based alcohol, and even high-tech flex-combustion engines used in Brazilian car production. These industries emerged in response to both higher wages and higher supply-push inflation caused by the oil crises in 1973 and 1979. Brazil, which depended heavily on imported petroleum (80 percent of the country's gasoline consumption), experienced very negative effects on its balance of trades and payments. Therefore, on the one hand, Brazil needed more capital-intensive sectors; and, on the other hand, a chosen sector should be relevant to energy-saving technologies.

Petroleum: The petroleum industry of Brazil originated in 1954, when the government founded *Petrobras*, the state-owned monopolist upstream of the energy sector (oil exploration). During the 1950s and 1960s, Petrobras focused on the quantitative expansion of oil reserves and production. For example, it increased domestic oil production from 2,700 bbl per day in 1954 to 95,000 bbl per day in 1961, which accounted for approximately 35 percent of national consumption. The volume increased dramatically to 180,000 and 563,000 bbl per day in 1980 and 1985, respectively (Dantas and Bell, 2009: 830).

However, these indicators did not reflect the technical improvement of the company, and therefore they could not guarantee long-term sustainability. For example, once the reserves had been exhausted, the company might fail desperately. One of many ways to escape this destiny was to invest in the technological capability and new techniques needed for further exploration, for example, new techniques and integrated sciences for “deep-sea” exploration (deeper than 400 meters) (*ibid.*). In the 1970s, when the nominal cost of labor and the prices of imported energy increased, the government cautiously drafted a plan for investing more in the energy sector,²⁸³ including Petrobras.

In the 1970s Petrobras shifted from quantitative expansion toward more “active learning” acquired from foreign companies. “For example, in 1977, the company established a technical assistance contract with a service supply company, Sedco-Hamilton, to acquire an emerging technology for offshore production, the newly-devised floating production system, which was based on a drilling semi-submersible platform that had been converted to undertake production. In 1978, Petrobras interacted with Vetco, an American supply company, to obtain the first wet Christmas tree²⁸⁴ to be installed in Brazil in the East Enchova field” (p. 834). These acquired technologies increasingly allowed Petrobras to reach into the deep sea.

Another example was a flexible line and riser, that is, a pipe that provides the means for oil and gas to pass from ocean ground to the well-head of production. Petrobras got the basic information (i.e., the characteristics of the riser in dynamic conditions) and technologies from Coflexip, a French supplier. In this case, it was particularly impressive that Petrobras also gave feedback data learned from real operations to Coflexip. In other words, Petrobras and

²⁸³ This effort helped to decrease long-term price instability (the government could control the costs of energy as a supply-push inflation) and, at the same time, shifted from the labor-intensive sector to a more capital-intensive one.

²⁸⁴ For those who do not know about oil exploration technology, this Christmas tree was not a little green tree to put Christmas gifts under. It was an infrastructural instrument for, primarily, controlling the flow of exploited oil and gas from wells.

Coflexip learned from each other; this was not just a conceptual two-way learning process. Coflexip actually utilized the data initiated by Petrobras to redesign the equipment, as well as “the identification of further requirements to adapt the equipment for ever deep sea” (p. 836).

These examples show that Petrobras not only expanded its production capacity after the 1960s; it also actively increased technological capability by working with foreign companies between the 1970s and 1980s. However, because of an interruption by an economic crisis that occurred between the mid-1980s and the first half of the 1990s, it had to wait until the late 1990s to develop its own innovative capability via R&D.

Agro-based alcohol: The most relevant sector of this category was the sugar industry. A pocket of competence ruled by capable bureaucrats in this sector was the IAA (*Instituto do Acucar e do Alcool*), established in the 1930s. The IAA also “functioned largely through informal, personalistic networks in which favors were exchanged” (Nunberg, 1986: 74), which consisted of the concept of the bureaucratic ring.²⁸⁵ From the mid-1960s, the IAA evaluated the sugar sector and found that it had two dialectical problems: low productivity and over-supply. On the one hand, the government needed to push the sector forward by enhancing productivities. However, it might worsen sugar prices and intensify the over-supply crisis. Hence, export promotion for the sector was equally important.

In 1966 the modernization program known as “GERAN”²⁸⁶ was implemented. It aimed to close non-profit mills,²⁸⁷ improve existing ones, and invest more in R&D (p. 68). Furthermore, in the early 1970s the IAA imposed a national agricultural research program called “PLANALSUCAR” (p. 70).²⁸⁸ At the same time, the state provided special export funds

²⁸⁵ The post-1964 military government did not see this informal network in a good way and tried to mitigate the networks by reforming and centralizing the recruitment of IAA officers.

²⁸⁶ *Grupo Especial para a Racionalizacao da Agroindustria Acucareira do Nordeste*.

²⁸⁷ These non-profit sugar mills were usually small millers called “*usineiros*.”

²⁸⁸ *Programma Nacional de Melhoramento de Cana-de-Acucar*.

of around 4.3 billion USD between 1973 and 1975 (p. 72). However, these supportive agencies and policies could not produce good outcomes if there were no good enterprises working side by side with the state's efforts. In the case of sugar-based alcohol, the main players were the large sugar conglomerates in the center-south area, particularly "COPERSUCAR."²⁸⁹

First, from the early 1970s, center-south sugar millers consolidated into larger-scale production supported by IAA programs. Classified by production capacity, the majority of millers in the center-south produced on average of 36,000–60,000 tons per year in 1978.²⁹⁰ Moreover, there were 9 millers that could produce more than 1,200,000 tons of sugar (p. 73). Second, these consolidated millers could adopt new techniques and technologies efficiently, and they increased the yield from 46.5 tons per hectare on average in 1974 to 55.1 tons in 1979 (p. 71). In the core area of sugar production, named *Parana*, the yield increased from 57 tons per hectare to 68.8 tons during the same period (p. 72).

Consequently, the number of sugar exports increased substantially from 453,000 metric tons in 1964 to a peak of 2,879,000 metric tons in 1974. During this period, there was a sign that even the export market was saturated (p. 58). Those consolidated millers did not slow down their cultivation; rather, they increased the amount of cultivated areas from 2,057,000 hectares to 2,701,000 hectares between 1974 and 1980 (p. 71). A surplus of sugar then needed to be processed into another product, namely, alcohol. In 1975 the government established the National Alcohol Program (*ProAlcool*),²⁹¹ designed to "save foreign exchange by using alcohol as a supplement to the nation's gasoline supply" (Hira and Oliveira, 2009: 2451).

Four initial schemes were implemented. First, Petrobras brought a guaranteed amount of ethanol each year. Second, the Bank of Brazil provided low interest rate loans for ethanol

²⁸⁹ *Cooperativa Central dos Produtores de Acucar do Estado de Sao Paulo*.

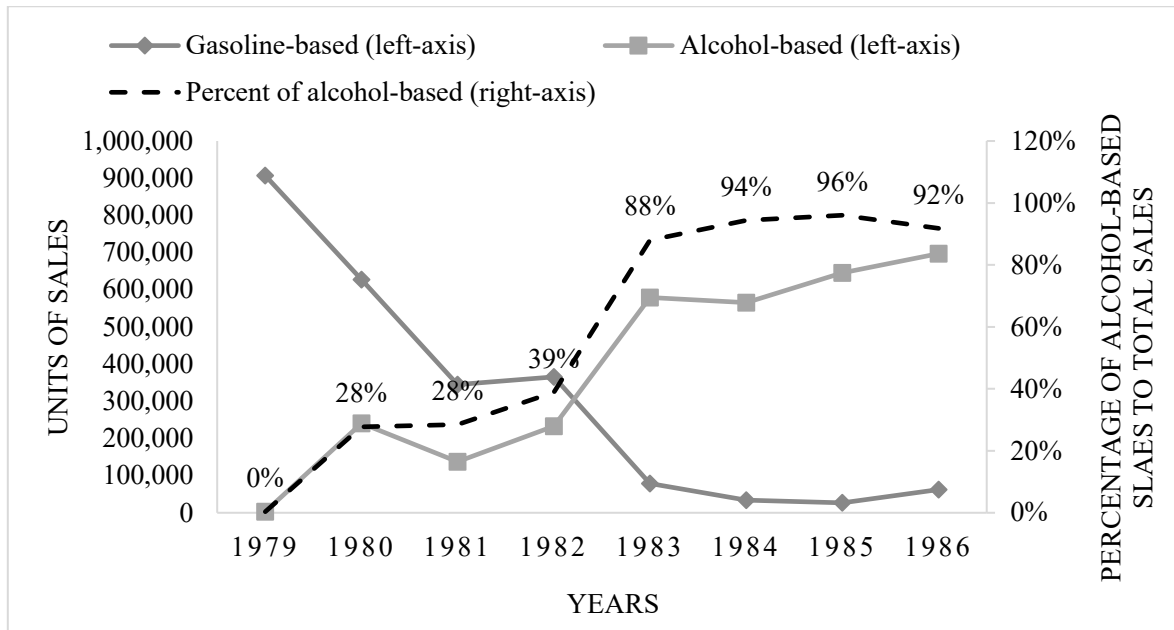
²⁹⁰ The majority of those millers had capacity for only around 6,000–18,000 tons per year in 1971–2.

²⁹¹ Governed by a National Alcohol commission (CNAL).

distilleries. Third, the government also subsidized ethanol use in cars. And, fourth, exported sugar was controlled to ensure that there was a sufficient supply of sugar to the alcohol industry. In 1976 individual auto-makers such as Ford, GM, and VW, as well as an auto-producers' association (ANFAVEA), announced that there were "no major technological barriers to the production of new engines that could use alcohol" (p. 2452). "The new alcohol-based car boomed. Sales of the cars increased from 1% of total car sales in January 1980 to 73% by December of that year" (p. 2453)

Between 1979 and 1986, alcohol-based car sales increased from 3,120 to 697,049 units. In contrast, sales of gasoline-based cars decreased from 906,885 units to just 62,020 units (**Figure 8.5**). This promising trend was reversed after 1986 because of two unanticipated shocks: the Brazilian economic crisis in the mid-1980s; and a world oil price collapse in 1986. Although the sales of alcohol-based cars reached rock bottom in 1998, the market fluctuation stimulated various firms to innovate and invest in R&D, even during the recession. The result was an impressive "flex-combustion engine," developed in the 1990s and commercialized in the 2000s. This issue will be discussed in the next section.

Figure 8.5: Sales of Brazilian vehicles by fuel types, 1979–1986



Source: Data from Hira and Oliveira (2009: 2455)

The Automotive Industry

The second group of industry chosen by the government for development was automobiles and vehicle parts, classified as capital- and technology-intensive industries. The automotive industry was founded much earlier, but it proceeded rapidly after the 1960s. By 1961 production capacity was around 145,000 cars per year, which belonged to 11 multinational companies (MNCs), with an average domestic content share of 93 percent by value. While production capacity increased to 280,000 units in 1968, producers were consolidated and shrank to 8 MNCs, of which just 3 controlled 89 percent of all vehicles produced (Shapiro, 1989: 448).

Since the 1970s the government's pocket of competence, named the Executive Group for the Automobile Industry (GEIA), utilized the aforementioned supportive tax schemes (Table 8.4), especially BEFIEX, to promote automotive production. As noted, the beneficiaries,

which received BEFIEX incentives, needed to commit to targeted exports during ten years. Three major firms – General Motors (GM), Volkswagen (VW), and Ford – committed to BEFIEX’s conditions and aimed to export 1 billion USD. Moreover, Fiat and Mercedes Benz committed to 500 million USD each (Rodrik, 1993: 20).

Under the existing condition of the 1970s supply chains, it seems inconceivable that Brazil could access the European market because, at that time, GM had already assigned its Australian subsidiary supplying engines to the European market. However, surprisingly, the incentives from BEFIEX changed the strategy of GM headquarters to sourcing more parts and cars from Brazil to satisfy export commitments (p. 20). As a result, “automotive exports rose from virtually nothing in 1972 to more than 1 billion USD in 1980. Total exports under BEFIEX contracts increased to 8.2 billion USD by 1990, at which time the program was phased out as part of an overall trade liberalization” (pp. 19–20).

This result shows that “The Brazilian state had the capacity to discipline firms, and was perceived as such” (p. 21). “The industry became relatively cost-efficient by international standards, and internal prices began to fall.” Furthermore, “taxes paid by the vehicle assemblers more than compensated for indirect subsidies they received” (Shapiro, 1989: 449). These preliminary outcomes reflected the fact that the automotive industry was doing well. While it was controlled by MNCs, the government could take returns from taxes. This industry also complemented the above strategic industry, namely, agro-based fuel for vehicles; and it employed skilled workers, trained them, and made knowledge diffusions in the 1990s.

The Industries Supported by Military: Aircraft and Computer

To understand these two newly developed industries, we need to understand the role of the military. “In most countries, the driving force behind establishing an industrial military

complex is a perceived external threat to national security. In Brazil, however, a strong defense industry has developed without any external impetus” (Neto, 1991: 83). The motivation, however came from the necessity to justify the army’s legitimacy in politics, that is, to promote national development. In this case, the military government was concerned with linking its preference for national development. The result was a “dual-use technology, which can be employed to produce either civilian or defense products, [and] would not force a trade-off between butter and guns” (p. 85).

Although the prominent enterprises in the industry were established in the late 1960s, rapid progress began only after a coordinated agency named the *Indústria de Material Bélico do Brasil* (IMBEL)²⁹² was created in 1975. Another military-linked organization that had a sizable impact on aircraft (as well as information technology) development were military training institutes. Two of these that will be cited frequently in this thesis are the *Centro Técnico de Aeronáutica* (CTA) and its subsidiary, the *Instituto Tecnológico de Aeronáutica* (ITA). The latter trained many skillful engineers in both aircraft and information technology industries.

The aircraft industry: In 1969 the government established Embraer to produce aircraft for both military and civil purposes. It proactively engaged in numerous joint ventures and licensing agreements in the 1970s to accelerate learning. For example, it acquired “large-scale assembling technology from Italian firm Aermacchi, sales techniques [from] the U.S. company Piper,²⁹³ and inputs such as landing gear for its airplane from French company Eran” (p. 96). Between the 1970s and 1980s, Embraer’s technological progress was impressive. **Table 8.6**

²⁹² IMBEL also worked with other public organizations such as the military research centers, the national development bank (BNDE), and the foreign trade agency of the Banco do Brasil (CACEX) (Neto, 1991: 93).

²⁹³ In addition, Piper provided technologies for small one- and two-engine commuter aircraft to Embraer (Hira and Oliveira, 2007: 334).

portrays a rough picture of the company's learning curve. It produced small and agricultural aircraft in addition to heavier and more sophisticated types of aircraft.

Table 8.6: Development of Embraer's aircraft models in the 1970s–1980s

Years	Development
1971	Developed the Xavante – a jet trainer and attack aircraft
1972	Introduced the Ipanema – an agricultural spray plane
1973	Developed the Bandeirante – a 19-seat turboprop plane
1976	Exported aircraft to Uruguay and Chile
1977	Introduced the Xingu – a pressurized corporate aircraft
1978	The Bandeirante was certified by the FAA (Federal Aviation Administration) of America
1984	Introduced the Brasilia (EMB-120) – a 30-passenger turboprop

Source: Hira and Oliveira (2007: 333-334)

Embraer's intention was to export in the first instance in order to sustain the industry because the limited scale of domestic demand could not provide sufficient income. Between 1975 and 1980, exports increased from 5 percent of total production to 53 percent (Hira and Oliveira, 2007: 334). The company realized that it could not compete directly with other big players in the global aircraft industry; therefore, it focused on the niche market. Embraer, for instance, customized products to local conditions, offered onsite technical assistance, and

maintained flexibility for buyers²⁹⁴ (Neto, 1991: 90). To stimulate sales, as well as the learning process, Embraer founded its subsidiaries in many countries, such as the USA (1981) and France (1983).

The 1980s was a promising decade for Embraer's exports. After the Berdeirante was certified by the FAA in 1978, its sales to the USA increased from 5 units in 1979 to 39 units in 1981, and 130 units in 1984. From the mid-1980s, approximately half of the international turboprop market belonged to Embraer. Fairchild, a former leader of the market, even requested that the US government impose a countervailing duty on Embraer (Hira and Oliveira, 2007: 334). Overall, the export values of the company increased from 80.9 million USD in 1980 to 385.3 million USD in 1988 (Neto, 1991: 92). These technological improvements, as well as export values, between the 1970s and 1980s reflected the higher level of competitiveness.

The computer industry: The Brazilian Navy was interested in building the computer industry in the late 1960s, purchasing many computer-operated machines from abroad. In the long run, and especially during wartime, overdependence on foreign supplies of computers could ruin national security. The Navy then ordered Katuchi Techim, ITA graduate and professor at the *Universidade de Brasilia*, to evaluate the feasibility of creating an indigenous computer industry in Brazil. Once the Navy had understood the preliminary picture of the industry, it created a proposal for developing a "Brazilian" computer (Langer, 1989: 103).

The first effort, led by a team from the *Universidade Estadual de Campinas* (UNICAMP), proposed a medium-sized microcomputer with a 24-bit processor named "*Cisne Branco* (White Swan)." However, it was too expensive and complicated (p. 104), so the Navy turned to something simpler and much less costly. In 1972 Helio Vieira,²⁹⁵ from the

²⁹⁴ Many targeted buyers concentrated on the Middle East because the government wanted to offset its trade deficit and net loss in foreign currency with these oil-exporting countries.

²⁹⁵ From the 1950s, the Instituto Tecnológico de Aeronáutica (ITA) was one of the best institutes for training in the engineering sciences for both civilians and military officers. In 1964, when the military government staged a

Laboratorio de Sistemas Digitais (LSD), proposed a prototype computer with an eight-bit word and four-kilobyte memory named the “*Patinho Frio* (Ugly Duckling).” The latter model satisfied the Navy, as well as the Brazilian development bank; therefore, it got a concession to develop a scientific-use computer (p. 105).

The government also founded two important state-owned enterprises (SOEs) – *Cobra* and *Prologo S/A* – to commercialize many researched products. As mentioned above, many students who graduated from the *Instituto Tecnológico de Aeronáutica* (ITA) also played important roles as entrepreneurs in the industry. They had concrete knowledge of how computers worked and how to improve their performance. Like South Korea and Taiwan, these local firms (both SOEs and private enterprises) paid attention to the so-called “creative duplication.” In the early phase of development, they quickly tried out a “clone” computer adopted from the earliest model such as IBM and Apple. This was part of the learning-by-doing.

After several trials and errors, the computer industry flourished in the late 1970s. Like the aircraft industry, the government supported Brazilian firms to seek an emerging and niche market instead of the mainstream one. From the 1970s, the market of large-sized mainframe computers was already dominated by multinational enterprises, mainly IBM. Therefore, the government decided to go for “minicomputers,” a smaller and less expensive type of computer.²⁹⁶ Between 1978 and 1982, domestic market shares of Brazilian firms in micro and

coup and penetrated the repressive environment in the institute, well-trained students and teachers retreated from the ITA and moved to other institutes. One of the most well-known destinations was the solid-state laboratory at the Universidade de São Paulo (USP), led by Mario Schenberg. At the time, Schenberg’s research of computer sciences (“informatics” in Brazilian terminology) was promising. He also had a joint project with Israel to build a mainframe computer. However, unfortunately Schenberg was imprisoned by the military government because he was a member of the Communist Party (Langer, 1989: 99). Hence, the project collapsed and, again, many skilled researchers scattered. One member of the Schenberg–Israeli project later became a pioneer of commercialized computers. He was Helio Vieira. Many others who did not return to an academic track later became entrepreneurs in the computer industry in the subsequent decades.

²⁹⁶ Indeed, before the 1980s, microcomputers and personal computers were underdeveloped.

minicomputers increased from 17 to 80 percent. In 1983 there were 54 Brazilian computer manufacturers, of which 25 were established after 1978 (Schwartzman, 1988).

In the early 1980s they also invested in R&D and human resources, supported by the government agency, the *Secretaria Nacional de Informatica* (SNI).²⁹⁷ For example, in 1983 Brazilian firms in the industry hired 1,117 employees for hardware and software development. In contrast, the MNCs hired only 112 employees, because their R&D centers were located in other countries. At the same time, 89.5 percent of the expenditure of the Brazilian firms on software was concentrated on in-house activities (ibid.), which reflected the fact that they tried hard to increase their own learning curve and technological capacity.

In sum, from 1964 to 1985, targeted sectors had achieved great results. They not only generated quantitative expansion of production but also accumulated technological capability via acquiring and licensing foreign know-how. These sectors also connected with one another in sophisticated ways. For example, Petrobras (SOE) and the auto-makers' association (led by MNCs) closely supported the bio-fuel sectors. Both the computer and aircraft sectors depended on public research and military institutions. These sectors were also granted and supervised by various capable state agencies (the so-called pocket of competence), especially the development bank.

When the Miracle Ended and the Crisis Began

Brazil is a large country in many ways (i.e., population and geography); therefore, achievements in just a handful sectors were diluted, from a macro-perspective. Nevertheless, between the 1970s and the early 1980s, Brazil could maintain income per capita higher than

²⁹⁷ The government also procured the made-in-Brazil computers for tax data calculation and the social security system.

South Korea and Taiwan, which was really impressive. In order to sustain economic growth, Brazil quickly and radically invested in many strategic sectors. However, investments that were both too fast and too drastic²⁹⁸, between 1964 and 1980, had miserable consequences for macroeconomic stability. For example, the total investment by SOEs increased more than twice from 2.2 percent of GDP in 1960–72 to 4.7 percent of GDP in 1973–80. An overexpansion of the government's investment led to unimaginable fiscal deficits (Ayres et al., 2018: 34).

History then repeated itself. As in the early 1960s, the military government gradually issued money without precious back-ups. The *seigniorage* ratio increased from 1.9 percent of GDP in 1965–72 to 3.2 percent of GDP in 1981–94 and triggered higher inflation rates. Because this process took time, nearly two decades of the military regime, not only did it cause inflation through looser monetary and fiscal policies, but it also created a consensus among Brazilian economic agents that high inflation was the new normal. In other words, the long-term expected inflation in Brazilian minds was very high. In this way, as a self-fulfilling effect, inflation rates grew continually, reaching more than 100 percent per year in 1980.

While between 1979 and 1981 the nominal interest rate – roughly 2 to 4 percent per month (p. 44) – was still below the inflation rate, the interest was high and lowered the incentives for investors to borrow domestically, which triggered higher external debt. Between 1975 and 1985, public external debt increased rapidly from below 10 percent of GDP to more than 30 percent of GDP (p. 37). The high inflation and high external debt were also closely linked to Brazil's international trade. Once inflation was high, it practically appreciated the real exchange rate and deterred the price competitiveness of export products, which were an engine

²⁹⁸ Together, Brazil was too slow to adjust its industrial policy in some strategic industries. For example, the country tried to develop an independent nuclear project in the 1950s. At first, Brazil cooperated with the US government in developing the project. However, after the United States ratified the Treaty on the Non-proliferation of Nuclear Weapons in 1968, it withdrew from the collaboration and stopped supplies of uranium to Brazil. Therefore, Brazil made an agreement with West Germany and created a ten-billion-dollar program for nuclear energy development, which was then delayed and visibly failed in the 1980s (Adler, 1988: 76–8).

of growth in the late 1970s. The government handled the issue by radical devaluation in the early 1980s, which reinforced a deepening of external debt.

As a result, overall, the inflation rate increased from 44.5 percent per year in the second half of the 1970s to 130 percent in the first half of the 1980s. During the same period, the annual growth rate declined from 6.3 percent to just 0.8 percent per year. In the 1980s fiscal instability became a crisis, which increased the long-term risk of investment, decreased the patient capital of investors, and interrupted the learning process of innovative tradable goods in industries that were developing well (Ocampo. 2020: 22). This dragged the army out of Brazil's political stage and created a chance for civilians to control their own fates. In the next chapter, we examine the struggle of civil governments and labor movements to develop the country under the pre-existing crisis.

Chapter 9:

Brazilian Developmental Labor

Triggered the Bifurcated State II

In the mid-1980s the military government could not handle the decline of the Brazilian economy and lost its legitimacy to control the government. Even before the military had handed the government back to civil politicians and allowed democratization in 1985, it had already been defeated by the opposition in the sub-national elections (Friedman and Hochstetler, 2002: 27). The new government created an opportunity for the labor movements. In this chapter, I will show that how labor movements increased continually after the transition (1985–95), which stimulated the government to end the crisis and upgraded the technological capability of the country. However, the movements were bifurcated in character and therefore stimulated institutional changes toward the bifurcated market economy (BMEs).

9.1 Labor Movements in the Crisis and Their Revivals in the Late 1990s

Labor Movements after 1985

As elaborated in Chapter 8, the labor movements revived and flourished in the early 1980s. Not only could industrial workers regain their roles on the national stage, but newly emerging forces such as rural workers, mid-range salaried workers, and service workers were gradually able to organize themselves. The influential areas did not scope through the national platform alone, but they were also slowly diffused among factory-level organizations. In the second half

of the 1980s, these labor organizations did not slow down. In contrast, they could expand against the economic recession and high inflation context.

For example, in **Table 9.1** we see that the total number of strikes in Brazil increased more than twice, from 843 incidents in 1985 to 1,914 incidents in 1988. Other indexes indicated that the militancy of the events also increased. The number of workdays lost, for instance, increased from around 48.81 million in 1985 to 63.50 million in 1988. The average number of days used for strikes increased from 5.5 in 1985 to 9.34 days per strike in 1988, which showed an increased length of time per dispute. These highly militant movements, to a large extent, contributed to the development of the Constitution of 1988, which granted the rights to collectively bargain, as well as to strike, to workers (Gunther, 2017: 23).

Table 9.1: Workers’ strikes and related indicators in Brazil, 1985–1988

Indicators	1985	1986	1987	1988
Number of strikes	843	1,493	2,259	1,914
Days missed	4,635	7,842	18,291	17,883
Average days missed per strike	5.50	5.25	8.10	9.34
Workdays lost	48,812,484	32,188,679	58,956,510	63,495,190

Source: Modified from Antunes and Wilson (1994: 27)²⁹⁹

The labor court also applied the new constitution and labor laws to protect labor rights when judges considered dispute cases between employers and employees. For example, they shifted from controlling strikes per se to limiting “the duration of strikes” (Bensusán, 2016:

²⁹⁹ Antunes and Wilson (1994) used 5 indicators collected from *Comissao de Estatisticas Basicas da Area do Trabalho e da Assessoria Economica do Ministerio do Trabalho* in 1989. I borrow just only three of them (number of strikes, days missed, and workdays lost) to calculate my own numbers.

150). **Table 9.2** also represents the militancy of the movement between two periods. All indicators show that militancy was high and increasing. The total number of strikes was 11,600 incidents, which on average mobilized 8 days. The size of the strikes was also very large. More than 50 percent of all strikes had more than 300 participants, half of which had more than 1,000 participants. A mean number of strikers was around 952 people, and approximately 43 percent were held in Sao Paulo.

Table 9.2: Workers' strikes and related indicators in Brazil, 1983-1991

Indicators	Period		
	All	1983–88	1989–91
Number of strikes	11,600	6,041	5,559
Mean duration of strikes	8	7	9
Mean number of strikers	952	918	989
Proportion of strikes (up to 300) (%)	46	47	45
Proportion of strikes (300–1,000) (%)	27	28	27
Proportion of strikes (more than 1,000) (%)	27	25	28
Proportion of State of Sao Paulo	43	42	45

Source: Devidé Júnior and Carvalho (2016: 8)

At factory level, workers occupied metal-plant factories, which lasted for 28 days in Sao Jose dos Campos in 1985.³⁰⁰ While the workers controlled the plant, they still operated the production by rotating tasks. This reflected the fact that the labor movement was concerned with the survival and profit of employers as a source of income. Like the South Korean and Taiwanese cases, Brazilian workers were developmental and pragmatic. They mobilized

³⁰⁰ Another famous strike occurred in the industrial region of Sao Paulo named ABC. It was called "Operation Furious Cow," which demanded shorter working hours without a salary reduction. This event involved around 30,000 workers (Antunes and Wilson, 1994: 27).

against exploitation; however, they also complied with capitalism's rules of the game, namely, economic growth. (The strikers changed their strategy to a more radical one of shutting down the plant only when capitalists did not compromise and tried to fire the leaders of the strike.)

The number of rural workers' unions also increased from 2,254 organizations in 1980 to 2,811 in 1990. The number of union members also expanded by around 20.52 percent between 1980 and 1988 (Houtzager, 2001: 21).

A significant downward trend of labor movements occurred in the early 1990s, when three crucial factors jointly deterred the labor movements, that is: (a) there was an economic crisis; (b) the idea of flexible employment; (c) the government policies towards neo-liberalism. These three conditions were mutually reinforcing. For example, the economic crisis in the late 1980s led to higher employment and weakened formal labor organizations. Then, the idea of flexible employment implemented by the private sector and neo-liberal policies imposed by the government made it difficult for laborers to find new jobs at the same time as organizing even after the recovery of the economy in the mid-1990s.

Indicators such as the number of strikes and strikers confirm the above points. After a short period of fluctuation between 1986 and 1989, the median of strikes declined continually from 163 incidents per month in 1990 to 46 incidents in 1999. Also, the number of strikers involved decreased from 757,056 persons in 1990 to 114,889 in 1999 (**Table 9.3**).³⁰¹ Because of the flexible employment and higher unemployment after the crisis, the number of informally employed persons increased permanently. Antunes (2001: 453) evaluated that between the 1980s and 1990s Brazil lost approximately 1.5 million job positions in the manufacturing sector

³⁰¹ Another source came from Cardoso (2004), which shows that Brazil's labor strikes reached a peak during 1989 and 1991. The number of strikes was around 4,000 incidents in 1989 and the mean of strikers was 12,000 people per incident in 1991. After that, these indicators declined continually. At the end of the 1990s, the number of strikes was only around 500 incidents a year. Moreover, the mean of strikers per incident was no more than 3,000 people (p. 37). Generally, this confirms the trend explained in **Table 8.8**.

and still could not recover. In 2000 approximately two-thirds of the labor force consisted of informally employed persons (p. 457).

Table 9.3: Number of strikes and strikers, monthly median, 1986–1999

Years	Strikes	Strikers
1986	105	687,845
1987	88	1,003,916
1988	71	684,491
1989	129	840,194
1990	163	757,056
1991	94	627,311
1992	52	234,951
1993	61	432,835
1994	94	272,173
1995	94	221,219
1996	111	224,515
1997	57	74,681
1998	50	142,891
1999	46	114,889

Source: Riethof (2004: 39)

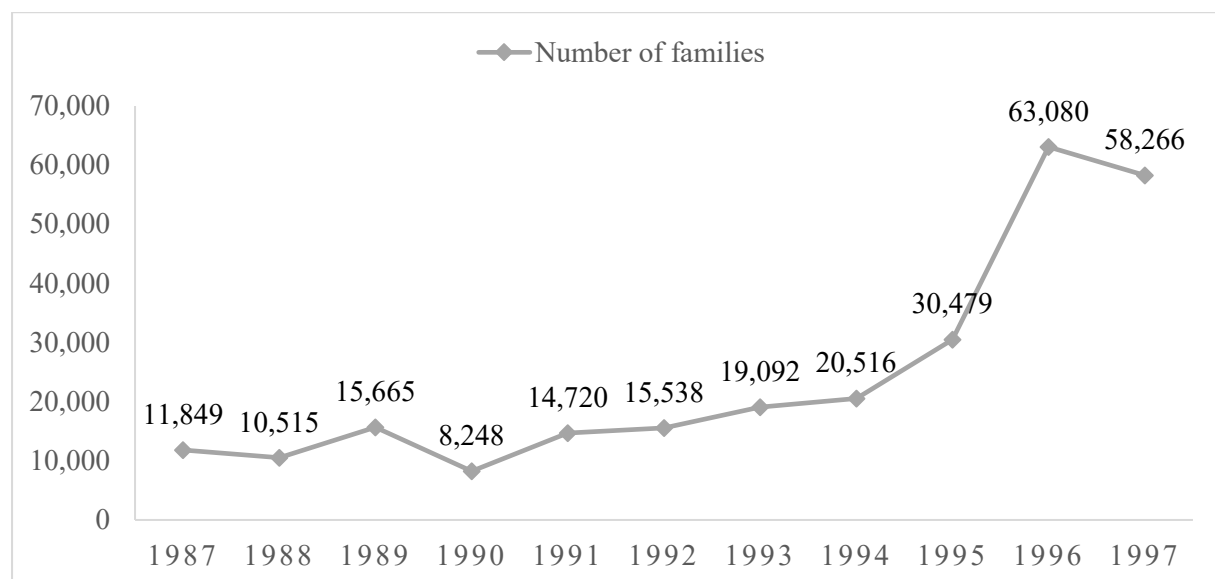
Some scholars interpreted the decline of the labor movements in the 1990s as leading to the crisis of labor politics in Brazil. However, data rather shows that the movements developed from these inferior conditions into the “new unionism”³⁰² in the late 1990s and early 2000s. Many labor organizations consciously shifted from being rigid, dichotomous rivals between “industrial labor” and capitalists to grasp a broader definition of conflict (i.e., the

³⁰² The new unionism emerged in the late 1980s. The main characteristics were: (1) the promotion of internal democracy within labor unions; (2) the protection of autonomy of the union for both employers and the state; and (3) promotion of the role of the state in the country’s economic development (Riethof, 2004: 32). While the movement declined in the early 1990s, it recovered at the end of the 1990s and early 2000s.

oppressor and the oppressed). In addition, the labor organizations changed their political strategies. To illustrate these changes, we should look at two important organizations: (1) the Landless Workers' Movement (*Movimento dos Trabalhadores Sem Terra – MST*); and (2) the Unique Workers' Central (*Central Unica dos Trabalhadores – CUT*).

The MST was established in 1984, a year before the collapse of the military regime. “The MST, although a social-political movement born in the rural world, has increasingly incorporated the excluded urban worker, [who] the past years or decades had migrated from the countryside to the cities” (Antunes, 2001: 456). Some of those unemployed workers could not retreat to rural areas because they did not have land to cultivate, and they became urban poor or landless rural workers. The MST increasingly absorbed these people in the 1990s and leveraged the mass requiring land reform, imposing radical practices such as the land occupation campaign. The number of families participating in the campaign increased from 11,849 households in 1987 to 58,266 households in 1997 (**Figure 9.1**).

Figure 9.1: The number of families participating in the land occupation campaign, 1987–1997



Source: Antunes (2001: 457)

Another case was the foundation of the CUT in 1983, a year before the MST was established. “In the 1990s, the CUT proposed to deal with economic problems through ‘the widening of resistance against attack against workers’ rights, the elaboration of alternative proposals, and the construction of a policy of alliance to resist neoliberalism’” (Riethof, 2004: 40). An obvious example was a movement protesting against privatization in the mid-1990s. However, as mentioned above, for many reasons the movement slowed down. “A general strike in 1996 did not result in large-scale mobilization, and labor leaders accept that many workers were no longer attracted to strikes” (p. 39). Therefore, various labor organizations, including the CUT, turned from combative strategies to participate with political parties, especially the Workers’ Party (*Partido dos Trabalhadores*, PT).

Now we can see that there were similarities and differences between the MST and the CUT. On the one hand, both tried to broaden their membership, including internalizing the unemployed, urban poor, and landless workers into their organizations. Most consisted of a broad category of informally employed workers. On the other hand, the MST pursued increasingly radical movements in order to voice and bring the state and capitalists to negotiate. In contrast, the CUT turned more to compromise and increased its participation with the political party.

The Rise of a Bifurcated Labor Market

At this point we can see that Brazil had a “bifurcated labor market,” which means the parallel existence of oppositional characteristics, at least in three dimensions. First, between 1985 and 2005, Brazil had a very large formal sector (45–50%) and informal sector (50–55%)³⁰³

³⁰³ In 1996 the Cardoso government introduced the SIMPLES law, a new system of tax exemption and simplification procedures for small and medium-sized enterprises. This helped to internalize many SMEs into the formal sector, so the informal sector declined from around two-thirds to half of the economy (Berg, 2010: 17).

(Menezes-Filho and Scorzaface, 2009: 16). In nominal terms, they contained a very significant number of workers and it could not ignore both. Second, while the government developed five strategic high-tech industries (petroleum, agro-based fuels, automobiles, aircrafts, and computers), there was a very large number of relatively low-tech sectors that employed low-skilled workers. Finally, labor organizations had different stances for their strategic movements. For example, the MST chose a radical path but the CUT decided to compromise. Together, the state-sponsored labor organizations compiled with the state and capitalists' guideline.

From the late 1980s to 1998, while the overall real wage was negatively affected by hyperinflation, the manufacturing sector's real wages were maintained and slowly increased. Menezes-Filho et al. (2002) analyzed the real wages of firms in the manufacturing sector, based on the Annual Industrial Survey. Between 1988 and 1994, when inflation was extremely high and the state could not effectively control the situation, the real wage fluctuated. However, from 1995 to 1998, when inflation gradually disappeared, the real wage revived. It should also be noted that labor productivities expanded during this phase (**Table 9.4**).

Table 9.4: Real wages and labor productivities of Brazil's manufacturing sector, 1988–1998

Year	Real wages		Labor productivity	
	<i>Value</i> (R\$ 1998)	<i>Annual</i> <i>changes (%)</i>	<i>Value</i> (R\$ 1998)	<i>Annual</i> <i>changes (%)</i>
1988	669	-	47,106	-
1989	737	10.16	48,023	1.95
1990	636	-13.70	41,225	-14.16
1992	715	12.42	63,876	54.94

Together, this formalized approximately 500,000 micro-enterprises and 2 million jobs during 2000–5 (p. 18). In 2008 the government pushed further by enacting the Individual Enterprises Law, which formalized micro-businesses with up to “one employee” and reduced the cost of social security (p. 22).

Year	Real wages		Labor productivity	
	<i>Value</i> (R\$ 1998)	<i>Annual</i> <i>changes (%)</i>	<i>Value</i> (R\$ 1998)	<i>Annual</i> <i>changes (%)</i>
1993	780	9.09	67,972	6.41
1994	750	-3.85	66,865	-1.63
1995	867	15.60	51,331	-23.23
1996	1017	17.30	59,107	15.15
1997	1043	2.56	64,660	9.39
1998	1068	2.40	63,879	-1.21
<i>Period changes</i> <i>(1988-98) (%)</i>	59.64	-	35.61	-

Source: Modified from Menezes-Filho et.al. (2002: 14)

In the early 2000s the CUT successfully collaborated with the PT to establish the first leftist government for decades. This laid the foundations for wage bargaining in the late 1990s and 2000s. For example, from 1998, when the crisis had already passed, the real minimum wage continually increased toward 2010 (Berg, 2010: 9). The real wage growth of unskilled workers increased from -2.39 percent in the 1980s to 0.67 percent and 4.46 percent in the 1990s and 2000s, respectively (Astorga, 2017). The overall real wage growth shifted from negative rates during Cardoso's administration to 0.2, 2.4, and 4.4 percent a year between 2004 and 2006 (**Table 9.5**). While these real wage rates were not particularly high, they showed revival trends after 2003 (Galvão, 2014: 188).³⁰⁴

³⁰⁴ Moreover, these wages were diluted by the size of the informal economy and inflation rates so that, in strategic sectors, it increased much higher than this data.

Table 9.5: Wages and employment in Brazil, 1998–2006

	<i>Cardoso's administration</i>					<i>Lula's administration I</i>				<i>Compare</i>	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	1999– 2002	2003– 2006
Unemployment rate (%)	9	9.6	NA	9.4	9.2	9.7	9	9.4	8.5	9.3	9.15
Employment growth (%)	-0.3	0.3	4.3	1.5	1.7	NA	3.2	3	2.3	1.5	2.83
Real minimum wage growth (%)	4	0.9	3.4	9.1	2.6	0.7	3.7	7	14.1	4	6.375
Real wage growth (%)	-0.5	-5.5	-1.2	-3.4	-3.5	NA	0.2	2.4	4.4	-2.82	2.33

Source: Barbosa-Filho (2008: 206)

In conclusion, these labor movements (both radical and compromised) forced the government to support wage restoration. Concurrently, the government was pushed to advance its welfare and industrial policies. These consequences triggered capitalists to adjust toward more high-tech productions. However, before we discuss the state–business adjustment, the next section elaborates how the labor movements ended the hyperinflationary crisis in the 1990s.

The End of Hyperinflation in 1995: Cardoso and Labor

After the civil government assumed office, it could not control the inflation rate. In the second half of the 1980s, the inflation rate exploded to 707.4 percent per year (Armijo, 2005: 2014). Other indicators, such as the fiscal deficit, also continued. Between 1984 and 1989, the federal debt quadrupled from 24 to 108 percent of GDP (Treisman, 2004: 400). From 1986 to 1992,

except in 1989, the real GDP per capita straightforwardly declined (Araujo et al., 2008: 579). This situation captured the attention of the economic agents. The civil government also drafted many plans to stabilize the economy, for example,³⁰⁵ the Cruzado Plan (1986), the Bresser Plan (1987), the Summer Plan (1989), the Collor Plan I (1990), and the Collor Plan II (1991).³⁰⁶

The plans initiated between 1986 and 1991 failed miserably. The outcomes were even worse in the case of the Collor Plans I and II. Between 1990 and 1994, the inflation rate reached 1,100.4 percent per year. This was not because the government's technocrats did not understand the theories of macroeconomic stabilization. All of the above plans pointed to similar foundations: freezing prices and wages aligned with some indexes for readjustment, tightened fiscal and monetary policies, and other complementary policies coping with negative side effects.

The problem, though, rested with “how to” deliver these general practices of stabilization and how to gain support from related parties. For example, President José Sarney (1985–90) weighted his calculation on the government's stability and needed to compromise every social actor in order to stay in power. As such, while the stabilizing plans under his government (Cruzado, Bresser, and Summer) emphasized both fiscal and monetary discipline, the government failed to realize the plans. “Sarney increased non-tax transfers to states and municipalities, raised central spending, and lavished patronage on parliament” (Treisman, 2004: 407). When the plan collapsed and lost all credibility, it was not surprising that hyperinflation continued.

³⁰⁵ The first three plans were drafted under Sarney's government (1985–90), and the last two were enacted under Collor's government (1990–2).

³⁰⁶ Generally, all of the plans tried to slow down price and wage adjustment by using some indexation and complementary policies to cope with distortions. In some cases, when the currency lost credibility and purchasing power, it was reformed and renamed. Both monetary and fiscal policies were always tightened to different degrees with the aim of reducing imbalances and deficits (but, in practice, many plans could not deliver what they promised).

In contrast, President Fernando Collor de Mello (1990–2) did not compromise at all. “He froze 80 percent of the country’s savings for eighteen months, raised taxes, reduced trade protection, canceled federal debt, fired 360,000 federal employees, prohibited state government from rolling over their central banks debt, and tried to recentralize fiscal revenues” (p. 407).³⁰⁷ While Collor, unlike Sarney, was able to realize his plan and forcefully pushed through several tough packages (he even achieved a fiscal surplus), he “failed to convince investors that these changes would be sustainable” (p. 409). As such, the expected inflation did not decrease as much as it should. Moreover, negative consequences, namely, unemployment and decreased consumption, led to a further contraction of growth.

In 1994 the new plan, named the “Real Plan,” came together with a new strategy to deliver stabilizing policies. The Minister of Finance, named Fernando Henrique Cardoso (later, president from 1995–2002), convinced all of the related parties to support the stabilizing package by breaking opposing alliances³⁰⁸ and turning them into supporters. He pleased some factions of opposing groups and repressed others.³⁰⁹ In other cases, he also imposed policies that had undesirable effects and, after that, compensated those damaged by other policies.³¹⁰

³⁰⁷ Because his policies had negative consequences for various parties such as bureaucrats, industrialists, and also state-level politicians, they jointly opposed him. He finally committed a corruption scandal and had to step down in 1992. In this sense, Sarney succeeded in his own goal because he was able to stay in power longer than Collor.

³⁰⁸ While inflation harms the economy in the long term, it benefits some parties in the short term. Moreover, even if we presume that inflation does not have any positive effects, some parties do not want to take short-term costs from the anti-inflationary policy. So, generally, there is an opposing alliance. For example, in the case of Brazil, “state governors wanted to retain constitutionally decentralized revenues and extract additional funds, including bailouts for their state banks” (Treisman, 2004: 406). Also, “the businessman community feared the high interest rates needed to cure inflation” (p. 407).

³⁰⁹ For example, Cardoso increased salaries for state officers. At the same time, he privatized many SOEs.

³¹⁰ For example, when Cardoso increased interest rates to cope with inflation, this lured foreign capital inflow. So, exchange rates appreciated and damaged both exporters and domestic industrialists. Cardoso compensated them by reducing export taxes and providing credit lines for damaging sectors (Treisman, 2004: 408). Indeed, even before the hyperinflation period, Brazilian inflation was already high (20–50% per year between 1960 and 1980); therefore, commercial banks looked to find a way to gain benefits in the high-inflation context. They usually “delayed clearances on accounts with low interest rates and invested the funds in high-yield overnight government bonds. Profits on this ‘inflationary float’ were estimated at four percent of GDP in 1990–1993” (p. 409). The Real Plan ceased most of this revenue. To compensate those banks, Cardoso imposed financial liberalization and issued high-interest-rate government bonds. These policies allowed banks to “borrow at 12 abroad and earn about 30 percent on government bonds” (p. 409). Cardoso appeased state governors by providing them with “emergency funds.” Simultaneously, he requested those states readjusted the fiscal balance and discipline themselves (p. 408).

Another important angle of Cardoso's strategy was "credible commitment." He tried not to aim too high, which led observers to disbelieve in the feasibility of the policy.

While he tried to accomplish these policies, he did not rush to decrease fiscal spending too much because it was linked directly to economic growth. He even injected more government spending in a short period. Spending rose from 32.7 percent in 1994 to 38.2 percent in 1995. This increasing expenditure was compensated by other new sources of funds such as privatized SOEs and taxes. In this way, the fiscal balance improved incrementally and became reliable from the perspective of investors. His stabilization, in the short term, relied upon a monetary policy that included tight reserve requirements, high interest rates (lowered money supply), and import competition. Between 1995 and 1999, inflation rates miraculously reduced to just 19.1 percent per year (p. 409).

The above stories emphasize the roles of stabilizing policies and leaders' strategies to end hyperinflation. However, this was not the complete picture. Armijo (2005: 2017) showed that workers also played important roles in supporting anti-inflation policies. Between the 1960s and 1980s, the government increasingly allowed political participation. The ratio of votes as a share of the voting-age population (VAP) increased from just 36.9 percent in 1962 to 70.4 percent in 1986³¹¹ (**Table 9.6**). Interestingly, 1986 was the first attempt by the government to control inflation through the Cruzado Plan. This means that, from the 1980s, political participation increased. For the first time ever, the median voter was poor and informally employed (p. 2021).

³¹¹ Also, according to the census analyzed by the same source, the minimum number of politically excluded persons decreased from 78 percent of economically active males to 46 percent between 1970 and 1980.

Table 9.6: Brazilian political participation: votes as share of the voting age population

Years	Types of election	Vote/VAP
1945	Congressional	23.70%
1945	Presidential	24%
1947	Congressional	9.70%
1950	Congressional	28.30%
1950	Presidential	28.40%
1954	Congressional	31.50%
1955	Presidential	27.50%
1958	Congressional	35.70%
1960	Presidential	33.40%
1962	Congressional	36.90%
1966	Congressional	38.40%
1970	Congressional	42.90%
1978	Congressional	55.50%
1982	Congressional	63.70%
1986	Congressional	70.40%
1989	Presidential	79.40%
1990	Congressional	76.60%
1994	Congressional	76.80%
1994	Presidential	76.90%
1998	Congressional	81%
1998	Presidential	81%
the military government		

Source: Armijo (2005: 2017)

Compared to formal industrial workers whose wages were bonded with indexation, the industrial workers were not particularly harmed by the high inflation. Informally employed and poor workers, on the contrary, were the real losers of high inflation because their wages could not automatically adjust and they were vulnerable to being fired during a recession. For this

reason, they wanted to end inflation more than anyone else. Because these informal workers were median voters in the 1980s, they could largely determine political results and policies.

This argument was confirmed by the polls and empirical results of the 1990 election. The polling agency DataFolha reported that, “Among those voters with a preference who earned up to five times the minimum wage, that is, the poorest group surveyed, 56% preferred Collor, while 44% chose Lula. Of those receiving between 5 and 10 times the minimum wage, however, 53% preferred Lula. Finally, and surprisingly, 61% of those making more than 10 times the minimum wage reported a preference for Lula” (Armijo, 2005: 2022). Informal and poor workers voted for Collor (instead of Lula) to end hyperinflation as the first priority, even if it meant they had to encounter a tough neo-liberal policy.

In brief, it was not just the wise political strategies and policies of the government that ended the hyperinflation crisis in the second half of the 1990s. The higher participation of informal workers in national politics also pushed (at least partially) the government to end the crisis.

9.2 State-Business Adjustment after 1995

Policies after the Crisis Ended: From Cardoso to Lula

After the two-decade crisis between 1985 and 1995, the subsequent government laid new foundations for the Brazilian economy. Four dimensions are discussed here.

First, there was the **monetary policy and inflation control**. The government granted autonomy to the central bank to control inflation using an inflation-targeting regime, which operated via a rule-based adjustment of interest rates against the business cycle. For example, when economic growth slowed down in mid-2003, the central bank lowered interest rates to

stimulate the economy. Then, in 2004, when growth had fully recovered, the central bank increased the policy rate from 16 to 19.75 percent per year (Barbosa-Filho, 2008: 199). The conversion from loose to tight monetary policies stabilized the Brazilian economy within an acceptable band of inflation and growth between 1998 and 2006 (**Table 9.7**).

Table 9.7: Inflation, GDP growth, and interest rate in Brazil, 1998–2006

	<i>Cardoso's administration</i>					<i>Lula's administration I</i>				<i>Compare</i>	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	1999– 2002	2003– 2006
Average inflation of the period (%)	3.2	4.9	7	6.8	8.4	14.7	6.6	6.9	4.2	6.8	6.4
GDP growth rate (%)	0	0.3	4.3	1.3	2.7	1.1	5.7	2.9	3.7	2.1	3.3
Nominal base interest rate (%)	18.8	25.6	17.4	17.3	19.2	23.3	16.22	19.1	15.1	19.8	18.4

Source: Modified from Barbosa-Filho (2008: 200)

Second, there was the **fiscal policy** designed to decrease government debt and generate growth at the same time. How did the government accomplish these two, almost contradictory, goals? Theoretically, if the government created balance by taking resources from the rich and spending the same amount of money on the poor, who had higher marginal propensity to consume, the economy could expand. This was called a “balance-budget multiplier” (p. 203). Cardoso followed this rule by balancing the government budget. The Lula government pushed his government’s policy further by trying to increase tax revenue and reallocating the taxes to the have-nots via social programs.

As we can see in **Table 9.8**, the federal revenue increased faster than expenditure, and the government was able to maintain a surplus budget from 1998 to 2000. When the surplus budget could be maintained, public debt reduced incrementally. This trend clearly occurred during the first Lula administration (2003–6), when net foreign and domestic debt decreased from 52.4 percent of GDP to 44.9 percent of GDP. This positive trend was reinforced by lowered global interest rates in the early 2000s. The net interest payments reduced from 7.2 percent to 6.7 percent of GDP. All these sets of information led to the conclusion that Brazilian macroeconomic stability could be sustained.³¹²

Table 9.8: Primary budget of the government and public debt of Brazil, 1998–2006, in percent of GDP

	<i>Cardoso's administration</i>					<i>Lula's administration I</i>				<i>Compare</i>	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	1999– 2002	2003– 2006
<i>Primary budget of the federal government in % of GDP</i>										<i>Average</i>	<i>Average</i>
Revenue	15.8	16.4	16.5	17.2	17.9	17.4	18.1	18.8	19.4	17	18.4
Expenditure	15.1	14.5	14.7	15.6	15.7	15.1	15.6	16.4	17.2	15.1	16.1
Error and omissions	-0.3	0.2	0	0	0	0	0.2	0.1	0.1	0.1	0.1
Balance	0.5	2.1	1.7	1.7	2.2	2.3	2.7	2.6	2.2	1.9	2.4
<i>Public debt in % of GDP</i>										<i>Change</i>	<i>Change</i>
Net domestic and foreign debt	38.8	44.5	45.5	48.5	50.5	52.4	47	46.5	44.9	11.7	-7.5
Net interest payments	7.4	12.5	7.4	8.2	13	7.2	6.5	7.1	6.8	5.6	-0.4

Source: Modified from Barbosa-Filho (2008: 202)

³¹² The higher stability of the economy was also reflected in the country's risk premium. The premium decreased from 1,460 basis points in 2002, at the end of Cardoso's administration, to just 149 basis points in 2006. Note: "The premium is the difference, in basis points, between the interest rate on the Brazilian Republic Bond 2040 and the interest rate on a US Treasury bond of same maturity" (Barbosa-Filho, 2008: 197).

The two lost decades taught Brazilian policy-makers that, in order to accomplish the long-term goals of development, it also needed to preserve short-term stability. In this way, on the one hand, both monetary and fiscal policy were designed to focus on stabilization. On the other hand, they also provided a good foundation for further development. As soon as Lula assumed presidential office in 2003, he declared that he would try his best to maintain stability, and he clearly committed to it. After a period of hesitation, investors believed his claim and returned to investing in Brazil. The growth of private investments recovered from -4.6 percent in 2003 to 9.1, 3.6, and 8.7 percent between 2004 and 2006 (p. 208).

After Lula consolidated the trust of investors and international society, he actively implemented the third set of policies. This was the **redistributive policy** named “*Fome Zero*,” aimed primarily at transferring in-kind (i.e., food) and in-cash resources to the poor. Later, the government reformed and rearranged various social programs under the same umbrella, named “*Bolsa Familia*.”³¹³ The program was simple and straightforward. “Any family that could prove it lived in extreme poverty – then defined as less than 50 reais (about \$42) per person a month – would be eligible for payments, as would moderately poor families that earned less than 100 reais a head” (Tepperman, 2016: 35).

The beneficiaries of the program also needed to compile counterpart responsibilities (*contrapartidas*). For example, beneficiary families had to send their children aged between six and fifteen to attend schools at least 85 percent of the time. Also, those families had to ensure that both mothers and children accessed the required medical check-ups, as well as immunizing vaccines (p. 35). Coverage of the program was impressive. The number of beneficiaries increased from 3.6 million families in 2003 to 10.9 million families in 2006,

³¹³ In fact, it was tested by local governments in 1995 and the national-level pilot project in 2001 during Cardoso’s government. So, the program was evaluated and assessed before implementation in 2003 (Tepperman, 2016: 33).

which consisted of 100 percent of poor families (Barbosa-Filho, 2008: 204). The question remains: What are the preferred consequences of the program and its coverage?

The program conditionally transferred cash to the have-nots and converted them into consumers (Tepperman, 2016: 41). From 2004 to 2006, after the program had been implemented, growth in domestic demand was around 5.2, 2.5, and 5.1 percent per year, respectively. In other words, domestic demand absorbed most of the GDP growth during the period (Barbosa-Filho, 2008: 208) and left small shares of production for exports.³¹⁴ Indeed, the transfers did not erode the macroeconomic stability that both Cardoso and Lula claimed to protect. For instance, income transfers during the Lula administration increased slightly from 7 percent of GDP in 2003 to 8.3 percent of GDP (p. 203).

Because of the *contrapartidas* of the program, the vaccination rate was increased to 99 percent of the population, and malnutrition among children in the poorest regions decreased by 16 percent. Other indicators related to health issues, such as the health weight-to-age ratio and death from malnutrition, improved. Another set of indicators was education and skill formation. The number of children forced to work instead of attending school fell by 14 percent, school attendance increased, and the national literacy rate rose (Tepperman, 2016: 42). These benefits led to the most impressive result, namely, the reduction of chronic inequality in Brazil.

The GINI coefficient, for example, decreased from 0.573 in 2002, at the end of Cardoso's government, to 0.566 in 2003, at the dawn of Lula's government. The coefficient continually decreased to 0.548 in 2006. The poverty rate was reduced from 28.2 percent of the population in 2003 to 19.3 percent in 2006. To view income shares, we can see that the income share of the most deprived 50% increased from 14.8 to 16.1 percent of national income.

³¹⁴ Indeed, this did not mean that exports and net exports were contracted. The value of exports expanded from 73,084 million USD in 2003 to 137,807 million USD in 2006 (Barbosa-Filho, 2008: 197). Net exports also followed a similar trend. However, the contribution of domestic demand as a proportion of GDP growth was higher than exports and net exports.

Simultaneously, the income shares of the top 10% of society decreased from 46.1 percent in 2003 to 44.9 percent of the national income in 2006 (**Table 9.9**). This trend of better distribution continued into the second term of Lula's administration (2007–10).

Table 9.9: Poverty rate and inequality measures, Brazil, 1998–2006

	<i>Cardoso's administration</i>					<i>Lula's administration I</i>				<i>Compare</i>	
	1998	1999	2000	2001	2002	2003	2004	2005	2006	1999– 2002	2003– 2006
Gini co-efficient (0–1)	0.584	0.576	NA	0.572	0.573	0.566	0.559	0.552	0.548	0.576	0.556
Poverty population ratio (%)	27.2	28.4	NA	27.6	26.7	28.2	25.4	22.8	19.3	27.48	23.93
Income share of the bottom 50% (% of national income)	13.5	13.9	NA	14.4	14.4	14.8	15.2	15.7	16.1	14.05	15.45
Income share of the top 10% (% of national income)	47.5	46.8	NA	46.9	47.1	46.1	45.4	45.4	44.9	47.08	45.45

Source: Barbosa-Filho (2008: 206)

The fourth policy was **investment promotion**, especially in research, high value-added activities, and high-technology sectors. In the second term of Lula's administration (2007–10), the government announced the “growth acceleration program” supporting investment in the infrastructure, transport, and energy sectors. SOEs such as Petrobras actively responded to the plan by expanding its investment, which reached a peak at 2.6 percent of GDP in 2009. Other state-owned financial intermediaries such as the BNDES and Banco do Brasil expanded their

credit to producers, as well as consumers, of the targeted sectors. BNDES's loans were approximately 3.3 percent of GDP in 2009 (Morais and Saad-Filho, 2011: 35–6).

At the last moment of Lula's administration, in 2010, the government enacted the Greatest Brazil Plan (*Plano Brasil Maior*), aimed at advancing the Brazilian economy.³¹⁵ The government of Lula's successor – Dilma Rousseff (2011–16) – took this plan seriously and pushed it further. While we cannot look at all of the details of the plan here, I shall pick some key targets to discuss in **Table 9.10**. The government intended to increase business expenditure on R&D, schooling years of industrial workers, value-added of Brazilian products, innovative SMEs, and diversification of exports. All these targets related to industrial and technological upgrading.

Table 9.10: The key targets of the Greater Brazil Plan

Aim	Reference position	Target (2014)
1. Increase in fixed investment as a percentage of GDP	18.4% (2010)	22.40%
2. Increase in business expenditure on R&D as a percentage of GDP (target shared with the National Strategy for Science, Technology, and Innovation – ENCTI)	0.59% (2010)	0.90%
3. Improvement of HR qualification: % of industrial workers with at least secondary education	53.7% (2010)	65%
4. Increase of national value-added: value of industrial transformation/gross value of production (<i>Valor da Transformacao</i>)	44.3% (2009)	45.30%

³¹⁵ As early as 2003 the government enacted the industrial plan named “Industrial, Technological and Foreign Trade Policy” (PITCE). It was upgraded in 2008 and internalized to the Policy of Production Development (PDP).

Aim	Reference position	Target (2014)
<i>Industrial/Valor Bruto da Producao:</i>		
VTI/VBP)		
5. Expansion of knowledge-intensive industry:		
high- and medium-high-tech industry	30.1% (2009)	31.50%
VTI/total industry VTI		
6. Strengthening of SMEs: 50% increase in the number of innovative SMEs	37,100 (2008)	58,000
7. Cleaner production, reduction of energy consumption per unit of industrial GDP (energy consumption in tons of oil equivalents (TOE) per unit of industrial GDP)	150.7 TOE/R\$ million (2010)	137 TOE/R\$ million
8. Diversification of Brazilian exports, expanding the country's participation in international trade	1.36% (2010)	1.60%
9. Expansion of energy-related sectors (by increasing their VTI/VBP ratio)	64%	66%
10. Expanding access to goods and services that improve quality of life: increasing the number of urban households with broadband access	13.8 million households	40 million households

Source: Czarnecka-Gallas (2013: 24)

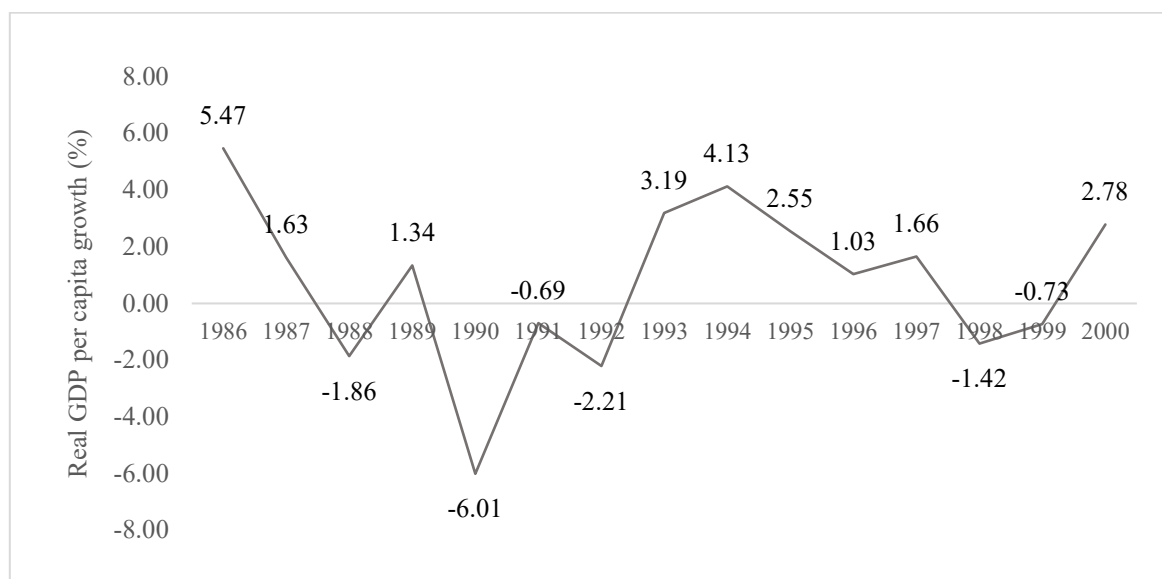
In conclusion, around the mid-1990s, Cardoso's administration successfully stabilized Brazil's economy. Then, the first term of the Lula government focused on stimulating growth and domestic demand via redistributive policies. When the have-nots survived financially, they had more incentives to invest in education and skills, leading to higher supplies of skilled workers. These conditions provided more resources for R&D, innovation, qualitative expansion of growth, and sectoral development. This virtuous cycle was reinforced by the re-

emergence of the labor movements, which engaged closely with the Lula government and induced a higher minimum wage and transfers. The upward trend of wages and these favorable public policies then endorsed capitalists to upgrade their technologies in the 2000s.

Capitalists' Responses from 1990 to the 2000s: A re-evaluation

Not surprisingly, between 1985 and 1995, when the crisis was at its peak, Brazil's GNI per capita, measured from both the production and demand sides, contracted. However, after 1992, together with the successful Real Plan in 1994, Brazil's real GNI per capita recovered incrementally. When the economy was stable, each sector could regain its natural growth rates and realize its own capabilities (**Figure 9.2**). After 1995 Brazil's strategic sectors flourished, in terms of both production and technology. Labor wages and state policies also endorsed this revival economy.

Figure 9.2: Real GDP per capita growth in Brazil, 1986-2000



Source: Calculated by author based on data from Araujo *et. al.* (2008: 579)

Real wages rebounded and pushed firms to invest in new technologies. For example, between 1993 and 1998, the real wages of uneducated workers (0–4 schooling years), who presumably accepted the minimum wage, increased by 2.56 percent per year (Bruns et al, 2012: 26). After that, from 1998 to 2006, real minimum wages still grew faster than average wages (+4 percent vs. -2.82 percent) (Barbosa-Filho, 2008: 206), meaning that the lowest-paid workers continued to gain wages at a faster pace than normal workers.³¹⁶ In this case, the profit-seeking capitalists were stimulated to adjust to produce new high-tech and high-value-added products in order to escape producers who had higher competitiveness in cheap and low-value-added products.

Instantaneously, the government gave more support to education. For instance, after the *Bolsa Familia* was implemented in 2003, educational attainment increased and provided more skilled workers to the market. Brazil's average schooling years increased from just 3.8 years in 1990 to 7.2 years in 2010 (Bruns et al, 2012: 2). Its secondary education gross enrollment ratio³¹⁷ jumped from 38 percent in 1990 to 104 percent in 2000 (p. 3). Indeed, an expansion of skilled workers was incremental by nature and could not abruptly improve the macro-situation of Brazilian education. However, it was enough to supply skilled workers for the strategic and high-tech sectors.

These factors explain how Brazil's firms accelerated their technology and GNI per capita increase substantially in the second half of the 2000s and then touched the lower bound of the high-income threshold. In the following parts, I shall give more details about each strategic sector, namely, petroleum, agro-based alcohol, automobiles, aircraft, and information

³¹⁶ Because workers who got the minimum wage were mostly uneducated (0–4 schooling years), uneducated persons gained wages at a faster pace than educated persons (still, they gained wages much lower than normal workers in nominal terms). A similar finding was discovered by Green et al. (2000: 34).

³¹⁷ The total number of students enrolled as a percentage of the relevant age group.

technology (IT), which drove Brazil's economy after 1990.³¹⁸ Then, I will link these sectoral improvements back to the macroeconomic picture by showing the decomposition of GDP growth between 2000 and 2010.

The Energy-related Industries

The petroleum industry (Petrobras): During the crisis, Petrobras actively learned new technologies. From the early 1990s, when hyperinflation peaked, the company began to develop its own technology, such as the wet Christmas tree designed by Petrobras. Then, in the late 1990s, Petrobras successfully transformed into a technology-selling company. It transferred, for example, the technology for “instrumented pigs” to a local company in 1998 (**Table 9.11**). So, we can see that while Petrobras was very damaged by the crisis and was even privatized in 2000 by the Cardoso government, it never stopped innovating. It consciously knew that the long-term capacity of the company depended on its technological capacity alone.

Table 9.11: Selected activities of Petrobras's research and development, 1985–1998

Year/period	Activities related to research and development
Mid-1980s	Interacted with the Alberto Luiz Coimbra Institute (COPPE) at the Federal University of Rio de Janeiro to gain knowledge in the design of semi-submersible platforms.

³¹⁸ More than these manufacturing industries, agricultural industries were also transformed. For example, the agricultural frontier expanded by 88 million hectares between 1992 and 2003. Billions of dollars were spent on machinery such as tractors. By 2002 the annual production of agricultural machines (presumably for domestic consumption) was 52,000 units. Most agricultural products were treated as industrialized products. For instance, they were sold as “orange juice concentrated rather than orange themselves, refined and packaged sugar rather than raw sugar, and soy meal and oil rather than soybeans” (Welch, 2006: 44). This mechanization and industrialization of agricultural production was driven by the labor movements and strikes. Sergio Luis dos Santos, the mechanization manager of Usina da Pedra sugar mill, reported that, “The great impulse for mechanization was the strikes, labor indemnities, the whole social problems of working with sugarcane cutters” (p. 46).

Year/period	Activities related to research and development
Late 1980s	Signed a technical assistance agreement with the Swedish company Gotaverken Arendal AB (GVA) to acquire the semi-submersible platform designs.
Late 1980s	Collaborated with Chalmers University in Sweden and Det Norske Veritas (DNV) to draw on knowledge flows and learning to design the semi-submersible platform.
1985–1991	Made several joint industry projects with other companies such as Marathon Oil and Smedvig for research and development.
1986	Jointly developed a Master’s program in rock mechanics and drilling with the Pontifical Catholic University of Rio de Janeiro.
1992–1996	Collaborated with suppliers such as Cameron, ABB-Vetco Gray, Flexibras, and Coflexip in fields of proven technologies for incremental development.
1994	Collaborated with Norwegian company Kvaerner to develop a wet Christmas tree designed by Petrobas.
1994	Signed a technology exchange agreement with Shell, BP, and Statoil to exchange knowledge about the semi-submersible floating production system.
1998	Transferred Petrobras's technology of instrumented pigs (devices for surveying, testing, and clearing pipelines internally) to local supply company Pipeway.

Source: Dantas and Bell (2009: 837-8)

As illustrated in **Table 9.12**, between 1999 and 2008, the company continually expanded its petroleum reserves, production, assets, and net income. These successful indicators were directly related to technologies discovered and improved during the 1980s and 1990s against the “challenges of deep and ultra-deep-water environments, heavy oil production and High Pressure/High Temperature (HPHT) survivors” (Goldstein, 2010: 102). Petrobras

remarkably drilled down to 2.853 km – the world’s deepest exploration well at that time – in the Roncador field. From 2000 technological capacity clearly became the company’s competitive advantage, incentivizing the board to increase investment in it.

Table 9.12: Key corporate performances of Petrobras, 1999–2008

	1999	2002	2005	2008
<i>Financial (million USD)</i>				
Total assets	33,733	32,154	78,638	
Total revenues	23,467	32,987	56,234	
Net incomes	727	2,311	10,344	18,879
Capital and exploratory expenses	4,351	4,911	10,635	
<i>Operating</i>				
Oil productions ('000bpd)	422	542	643	1,979
Natural gas productions ('000 bpd)	263	495	741	421
Oil reserves (million barrels)	8,279	8,955	9,716	12,508
Natural gas reserves	7,498	9,473	12,352	

Source: Goldstein (2010: 102)

By 2007 the R&D expenditure of Petrobras was comparable to global petroleum companies such as BP and Shell. “These efforts have resulted in 172 USPTO patents since 1976,” which is comparable to CNPC/Petrochina – one of the world’s largest companies (p. 103). It competed in many ultra-deep fields and increased reserves outside Brazil from 12 percent of the total in 2002 to 17 percent in 2010. It also held more than 100 production licenses in 27 countries. Indeed, some scholars might link these successful stories to privatization.

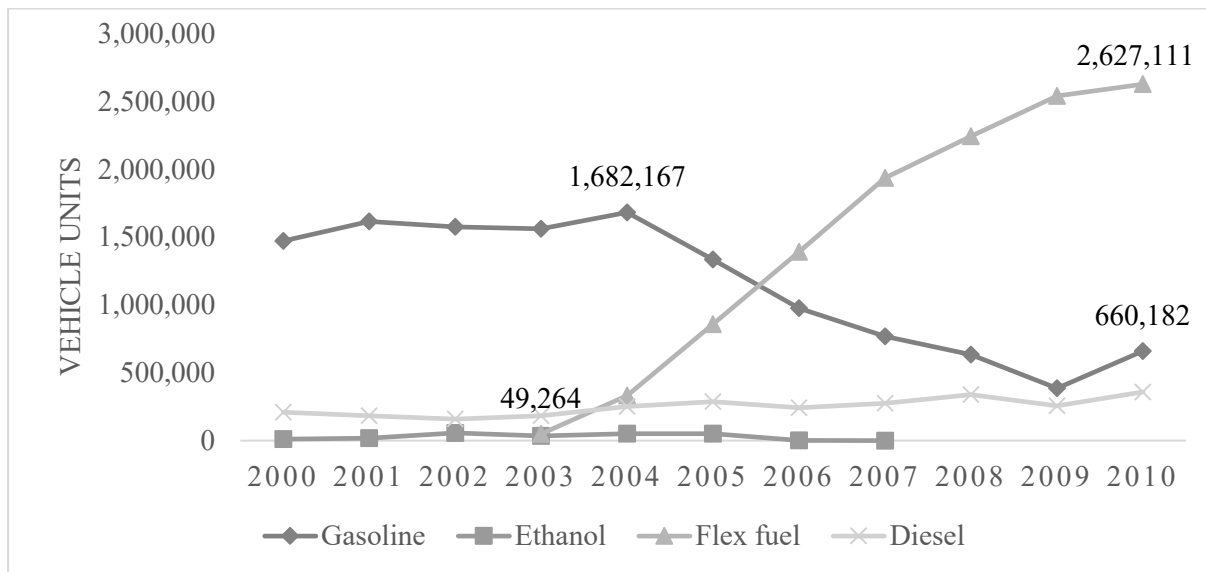
However, it was clear that Petrobras's performance was largely based on its technological capability, which it constructed intensely in the 1980s.

The story of Petrobras led to a re-evaluation of the Brazilian economy. That Brazil's export performance mostly depended on resource-based companies, especially oil and gas, does not mean they were low-technology industries. Resource-based companies could be very high-tech, and this was the case with Petrobras. Moreover, its technologies were efficient and practical enough to compete financially with other international competitors.

The flex-combustion engine and agro-based alcohol: Sales of alcohol-based vehicles quickly rose to a peak in the 1980s and then collapsed within a decade. Between 1986 and 1997, sales of alcohol-based cars dropped from 697,049 units to just 1,120 units. When demand for ethanol use in cars collapsed, agro-based alcohol sales were also doomed. Supportive programs and organizations such as The ProAlcool and CNAL all closed (Hira and Oliveira, 2009: 2454). This catastrophe happened because of the rapid decline in the global oil price in 1989 and the Brazilian economic crisis in the late-1980s. In other words, the oil price fluctuation led to the rise and decline of alternative alcohol-based vehicles.

In order to cope with these volatile risks, many research laboratories located in Brazil came up with the idea of making a flexible combustion engine that used both gasoline and agro-based alcohol. The core technology for this kind of combustion was the "engine control unit (ECU)" designed for blending gasoline and alcohol into burning. In the mid-1990s a subsidiary of a German engineering company – *Bosch* – in Brazil developed a "software fuel sensor" to control the ECU, and it was commercially advanced by an Italian auto-parts company, *Magneti Marelli*, in the early 2000s. In 2003 the first flex-combustion car was sold in Brazil. Its production expanded from 49,264 units in 2003 to 2,627,111 units in 2010 (**Figure 9.3**).

Figure 9.3: Vehicle production by fuel type, Brazil, 2000–2010



Source: Nascimento (2014: 548)

As soon as the innovative engine was introduced, agro-based alcohol sales revived. Ethanol production, for example, declined from 15 million liters in 1997–8 to 11 million liters in 2000–1. It then recovered to 15 million liters in 2003–4 and rapidly expanded to 28 million liters in 2008–9 (Giacomazzi, 2012). This story resembles what we have already discussed in the case of Petrobras; in other words, the technological progress of the strategic sectors did not stop during the crisis. In the case of the agro-based alcohol industry, it quickly recovered because of intense research and development of the flex-combustion technology in the mid-1990s.

The Automotive Industry

The automobile industry: The industry was dominated by the big four – Ford, Fiat, GM, and Volkswagen (VW). However, after the crisis ended, the government opened up the market for more competition and lured several competitors such as Toyota, Honda, Renault,

and PSA-Peugeot-Citroen to invest in Brazil (Consoni and Quadros, 2006: 9). These investments were relatively small; however, they were large enough to psychologically force the big four to develop themselves in order to maintain their leading status. As mentioned above, Fiat chose to reorganize its managerial system. Also, GM and VW actively invested in research and development of new products, especially those that were compatible with Brazil's market.

By the late-1990s GM began to give considerable autonomy to a local subsidiary (GM Brazil – GMB) and Brazilian engineers introducing changes in the original platforms of cars. For example, GM and GMB collaboratively modified a standard sub-compact car named Corsa Generation II and gave birth to a redesigned model named “Celta.” The new model was very important in at least two dimensions. First, Brazilian engineers were deeply involved in every process of development. Second, it led to a redesign of not only the product but also the whole supply chain. Since the project was successful, GMB gained trust from the GM group and had the chance to make its own-design car.

In the early 2000s GM's research center in Germany granted responsibility to GMB to lead a development project. The result was Meriva, the modified version of two standard platforms – the Corsa Generation III and the Astra. This project was progressive in two ways. First, GM's research center stepped back and let GMB mostly control the project. Second, intentionally, “the Meriva shares only 55 percent of parts and components with the Costa and 1/3 with the Astra.” These shares were lower than average (between 70% and 85% of former projects handled by GMB). These stories highlight the higher engineering competence of not just GMB but also other assemblers (pp. 17–18).

From the late 2000s, automobile sales of Brazil were higher than Mexico (4.21 times), Argentina (5.3 times), Colombia (13.14 times), and Venezuela (28.08 times). The growth of Brazilian automobile exports during 2009–10 was also impressive (61 percent) and higher than

other large Latin American countries, except Colombia (**Table 9.13**). By 2017 products related to the automobile industry (i.e., cars, automotive parts, and vehicle chassis and bodies) had sizable shares in Brazilian exports (more than 6% of total exports; **Table 9.14**). These pieces of information reflected the fact that the Brazilian automobile industry was qualitatively advanced, as well as sufficiently competitive to export.

Table 9.13: LA5 automobile sales and exports 2009–2010

Automobile sales (units)					
Year	Brazil	Mexico	Argentina	Colombia	Venezuela
2010	3,515,064	834,024	662,591	267,472	125,202
Automobile exports (units)					
2009	475,325	1,223,333	322,495	4,974	55
2010	767,432	1,859,185	447,953	12,019	0
Change (%)	61%	52%	39%	142%	-100%
Source	ANFAVEA	AMIA	ACARA	ANDI	CAVENEZ

Source: Perez Debrand (2012: 82-3)

Table 9.14: Brazilian export values and shares, selected items in 2017, Brazil

HS92 ID	Products	Export values (Billion USD)	Shares (percent of total exports)
8703	Cars	6.78	3.1
8704	Delivery trucks	2.9	1.3
8708	Vehicle parts	2.19	1
8701	Tractors	1.54	0.7
8706	Vehicle chassis	0.61	0.28
8702	Buses	0.579	0.26
8707	Vehicle bodies	0.207	0.095
	<i>total</i>	<i>14.806</i>	<i>6.735</i>

Source: OEC³¹⁹ (accessed July 30, 2019)

The Industries Supported by Military: Aircraft and Computer

The aircraft industry: Like other strategic industries, the Brazilian aircraft industry experienced a huge decline in the 1990s. Sales of Embraer dropped from 700 million USD to 177 million USD between 1989 and 1994. While the company downsized by firing half of its total employees in the early 1990s, its net income loss was more than 200 million USD per year (Hira and Oliveira, 2007: 335). Finally, it was privatized by the Cardoso government in 1994. The government still held the lion's share of the company's ownership, but it granted considerable autonomy to Mauricio Botelho, a new CEO, to reorganize the company. After the CEO reformed all of the possible choices in the company's backyard, he turned to focus more on investments and innovative products.

³¹⁹ The Observatory of Economic Complexity (OEC) is the non-profit organization aimed to collect and visualize international trade data. The official domain name is <https://oec.world/en/>.

Indeed, Botelho did not come up with completely new ideas for innovative products. During the crisis in the 1990s, Embraer had already researched a 50-seat regional jet named the ERJ-145. The new model was picked for development and sent to be certified in 1996. The major competitor of the model was the CRJ-200, made by Canadian company Bombardier. The result was striking: the ERJ-145 had more spacious seating and a lower price (12 percent cheaper than the CRJ-200). Therefore, Embraer earned several contracts and significant revenue from the new model. The company also made two other smaller models derived from the ERJ-145: the ERJ-135 and the ERJ-140 (p. 336).

The company leveraged its cumulative technological capability to create a more advanced model named the ERJ-170 and ERJ-190. The new model had more seats and a wider plane body and it was designed to handle longer-distance routes. At this point, several investors had sufficient confidence to inject additional funds into the company. In the case of the ERJ-170/190, external funds accounted for around 550 million USD, or approximately 40 percent of the total cost of development. The number of suppliers of the model, compared to the ERJ-1945, shrank from 200 to just 30 competent firms. Among those firms, three were Brazilian. Another advancement of Embraer's strategic development was sharing risk with suppliers via contractual designs and outsourcing (p. 337).

After 2000 the two largest – Boeing and Airbus – steadily maintained production and delivery. However, the third-rank Bombardier incrementally lost its market share to Embraer. For example, the number of sales of Bombardier jets dropped from 222 units in 2003 to just 33 in 2018. In contrast, the number of Embraer's jet sales never went lower than 90 between 2003 and 2018. The cumulative gap between Embraer and Bombardier was increasingly widening (**Table 9.15**). If we include other types of aircraft in the data set, Embraer's deliveries might have doubled in some years (**Figure 9.4**). In terms of export value, Brazil exported 4.37 billion

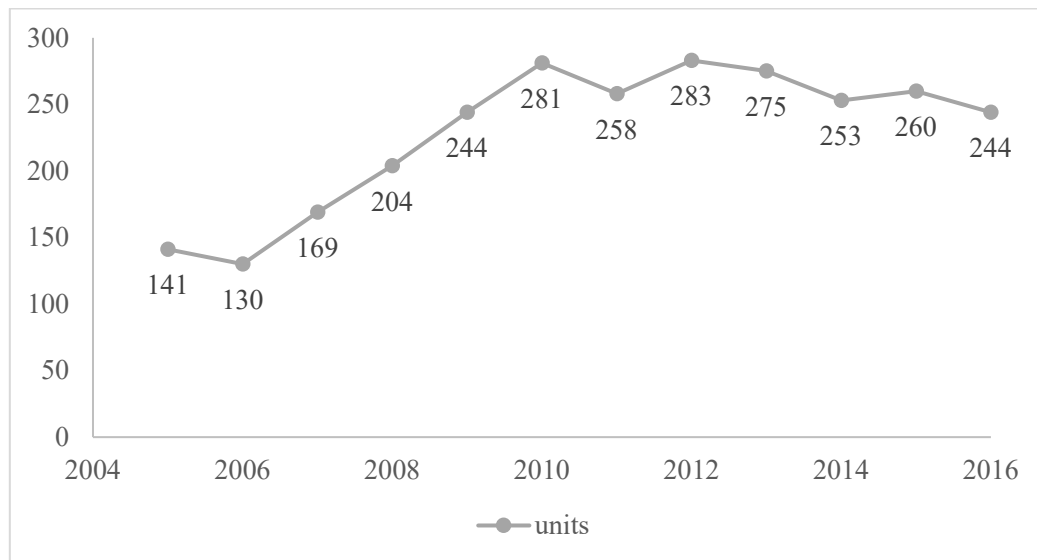
USD worth of aircrafts and 0.365 billion USD worth of aircraft parts in 2017. In recent years, Embraer stood firmly as the third largest high-tech aircraft company in the world.

Table 9.15: Number of jets added to the global aircraft fleet from 1998 to 2017 (in units)

Year	Boeing	Airbus	Bombardier	Embraer	Others
<i>1999</i>	620	294	82	97	38
<i>2000</i>	492	311	99	157	48
<i>2001</i>	527	325	147	154	39
<i>2002</i>	381	303	185	120	8
<i>2003</i>	281	305	222	88	11
<i>2004</i>	285	320	175	135	8
<i>2005</i>	290	378	99	121	4
<i>2006</i>	398	434	79	103	1
<i>2007</i>	441	453	60	133	0
<i>2008</i>	375	483	61	162	0
<i>2009</i>	481	498	59	122	0
<i>2010</i>	462	510	34	97	0
<i>2011</i>	477	534	47	108	5
<i>2012</i>	601	588	14	106	8
<i>2013</i>	648	626	26	90	15
<i>2014</i>	723	629	59	92	28
<i>2015</i>	762	635	44	101	22
<i>2016</i>	748	695	46	108	21
<i>2017</i>	763	735	26	101	26
<i>2018</i>	806	813	20	90	35
<i>2019</i>	380	863	26	89	19

Source: Statista (accessed July 31, 2019)

Figure 9.4: Embraer's aircraft deliveries (all types) from 2005 to 2016 (in units)



Source: Statista (accessed July 31, 2019)

The computer and information technology (IT) industry:³²⁰ To a large extent, the price gap between Brazilian and US computers dropped meaningfully in the late 1980s because of government support (i.e., Informatics Law (1991)), more competition, and the better learning capability of private firms and workers. This helped the computer industry to stand against the wind of recession between 1985 and 1995. The market size of the computer industry recovered from 4 billion USD in 1992 to nearly 8 billion USD in 1996 (Dedrick et al., 2001: 1207). Among the ten largest companies, six were Brazilian, which controlled 25.6 percent of the total market size in 1997 (p. 1209).³²¹

The development was even more impressive if we shift our perspective from the computer industry to the IT industry as a whole. The IT market tripled within a decade, from

³²⁰ The IT industry, in this work, refers to anything related to computing technology. In other words, the IT industry was the largest umbrella. Under the industry, there were sub-sectors such as hardware, software, and services. Hardware could also be separated into personal computers and other types of hardware instrument.

³²¹ Four of the top ten were foreign companies, led by Compaq, IBM, HP, and Acer. These firms controlled around 21.6 percent of Brazil's domestic market. The leading Brazilian firms were Itautec, UIS, Tropcom, Byte On, Microtec, and Fivestar (Dedrick et al., 2001: 1209).

approximately 2 billion USD in 1985, to 4 billion USD in 1990, and 6 billion USD in 1995 (p. 1207). Some business sectors, including labor-intensive ones such as food and beverages, invested more in computing and information technologies against the crisis. For example, a financial sector that encountered more volatile prices of goods and services actively developed banking automation and payments. In 2001, while the top-five largest private software firms were US and German, the sixth, seventh, and eighth were Brazilian, namely, *Microsiga*, *CPqD*,³²² and *Datasul* (Veloso et al., 2003: 21).³²³

By 2001, the sales of software companies accounted for around 7.7 billion USD, placing Brazil on the board as the world's sixth largest market. If we include other related goods and services such as supportive hardware, services, and consultancy in the calculation, the value could reach 18 billion USD. The software industry development index³²⁴ of Brazil was higher than many advanced economies such as the US, Japan, Germany, South Korea, Taiwan, and Finland. This enormous and growing domestic market of Brazil's computer and IT products led to fewer incentives for exports. In 2001, for instance, Brazil exported only 0.1 billion USD, or around 0.01 percent of total sales (p. 5).

Focusing more on the domestic market was not a problem per se. For example, Japan and South Korea exported less than Brazil in terms of nominal value. The computer and IT industries still invested heavily in R&D and generated more economic growth. Indeed, there were many criticisms of inefficiencies and barriers to further development in the industries, but is it fair to apportion too much blame if the industry straightforwardly grew by more than 17 percent a year from 1985 to 2001? In fact, after 2001, the growth rate increased more. A critical

³²² CPqD was the public research institute that was converted into a private firm following market liberalization in the early 1990s.

³²³ This data separated consulting and software service firms such as EDS, Accenture, and DBA out of the list. Microsiga and Datasul were oligopolies in a sub-sector called enterprise resource planning (ERP) for SMEs.

³²⁴ Sales, divided by the size of the economy, measured by GDP, and its level of development measured through GDP per capita.

juncture occurred in 2003, when Lula won the general election and set out to shift Brazil's computer and software industry into a new paradigm – digital inclusion. The government aimed to develop cheap and accessible computers with free basic programs.

Instead of seeing the computer and IT industries as a direct source of economic growth measured by narrow export and consumption values, Lula saw computers and IT services as the instrument for long-term and wide-range development. For example, more accessibility by the have-nots to computers led to more skilled and educated workers (or even producers). Therefore, the prices of computers and software should decrease, and consumption should increase. In 2004 Lula declared that he would help “79 percent of Brazil's population that had never used a computer to acquire equipment of good quality, including free software operating systems and applications, as well as Internet access” (Schoonmaker, 2009: 557).

The project was called “The Computer for All,” and the computer produced for the project was called the “people's computer or *computador popular*.” Certainly, the project did not kill or hurt existing hardware producers but encouraged them to participate. From 2006 more than 17 hardware manufacturers, including Dell and HP, joined the project (p. 558). The contributing firms significantly reduced their operating costs, as such prices of the computer decreased from 1,700 USD in 2005 to approximately 469–662 USD in 2008. Impressively, this was the first time in Brazilian history that the sales of computers (10.5 million units) surpassed the sales of televisions (10 million units) (p. 559).

As a complementary good, the people's computer forced other computer brands, whether they participated in the project or not, to reduce their prices. The decreasing price of computers in general then provided another important favored outcome, that is, a decline in the illegal market of pirate programs and cloned computers. This led to an expansion of the IT industry as a whole. After the Computer for All was implemented, Brazil's software and

services increased from 5.98 billion USD in 2004 to 15.36 billion USD in 2009 (Knight, 2011: 48). By 2009, Brazil's IT market was worth 30.5 billion USD, which was higher than other large emerging countries such as Russia (18.1 billion USD) and India (22.6 billion USD) (p. 45).

In conclusion, the “Computer for All” had four important characteristics. First, it provided a chance for Brazilian manufacturers to develop niche products related to “cheap hardware” and “open-source software.” In this sense, substantial technological progress was a result of the project. Second, it did not violate the market mechanism by including most of the existing players and inviting new participants. Therefore, it earned the title of “digital inclusion.” Third, as a growth engine of a large country, the aim was not necessarily for exports alone. Fourth, it positively encouraged the economy as a whole by providing more skilled workers via digital literacy.

Now, we have already examined the sectoral upgrading. These industries contributed considerably to an expansion of the overall growth rate of Brazil between 2000 and 2009.

As we can see in **Table 9.16**, the expansion of Petrobras contributed significantly to mineral-extraction activities, which increased by 75 percent during this period. The rapid expansion of the IT sector was reflected in the growth rate of information services, which accounted for around 64 percent. While the manufacturing industry got 15.7 percent of growth, which was relatively lower than the above two sectors, its qualitative and technological expansion could not be underrated.

Table 9.16: Output growth between 2000 and 2009

Sector	Growth	Activity	Growth
<i>Agriculture</i>	46%	Agriculture	46%
<i>Industry</i>	19.30%	Mineral extraction industry	75%
		Manufacturing industry	15.70%
		Production and distribution of electricity, gas and water	32.20%
		Construction	14.90%
<i>Services</i>	35.40%	Trade	32.20%
		Transport, storage and mail services	34.50%
		Information services	64.20%
		Financial intermediation, insurance, and pension funds	37.20%
		Real estate activities	42.90%
		Other services	32.20%
		Public administration, health, and education	28.10%

Source: Messa (2013: 459)

For example, in the manufacturing sector, it used less input (-53.7 percent) and generated more final demands (153.7 percent) between 2000 and 2009 (Table 9.17). This means that the growth of final demands, which was actually remarkable, was reduced by the lower input consumption (more efficiency).

Table 9.17: Effects on output growth between 2000 and 2009

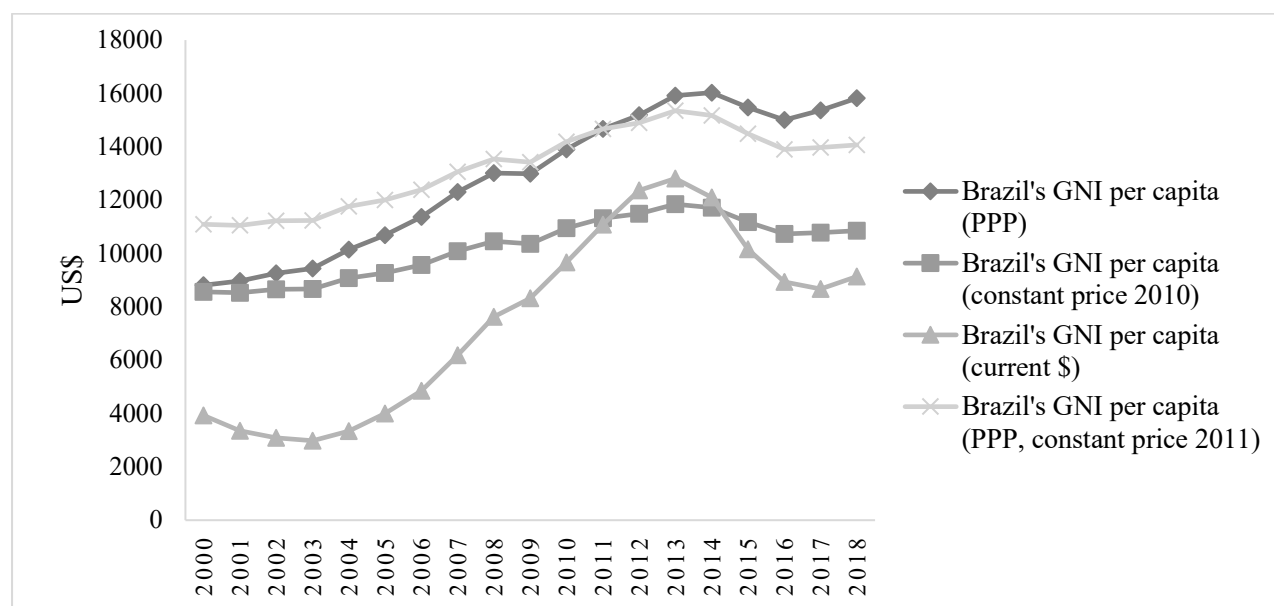
Sector/activity	Effects	
	Input-output ratios	Final demand
<i>Agriculture</i>	20.50%	79.50%
<i>Industry</i>	-28.80%	128.80%
<i>Services</i>	10.90%	89.10%
Agriculture	20.50%	79.50%
Mineral extraction industry	19.20%	80.80%
Manufacturing industry	-53.70%	153.70%
Production and distribution of electricity, gas and water	17.50%	82.50%
Construction	-14.30%	114.30%
Trade	11.40%	88.60%
Transport, storage and mail services	21%	79%
Information services	32.40%	67.60%
Financial intermediation, insurance, and pension funds	13%	87%
Real estate activities	16.10%	83.90%
Other services	1.70%	98.30%
Public administration, health, and education	-2.70%	102.70%

Source: Messa (2013: 460)

The substantial contributions of these strategic sectors and the expansion of domestic demand generated by Bolsa Familia led to a higher income per capita. Between 2000 and 2013, Brazil's gross domestic income (GNI) per capita – adjusted by purchasing power parity (PPP) and constant price in 2011 – skyrocketed from around 11,000 USD to 15,000 USD. Other indicators tell the same story: Brazilian GNI per capita continually expanded to a peak around

2013–14, when it nearly touched or surpassed (depending on the indicators) the high-income threshold (12,745 USD) (**Figure 9.5**). Despite all of the measurements contracting slightly between 2016 and 2017, GNI had already recovered by 2018.

Figure 9.5: GNI per capita of Brazil, 2000-2018



Source: The World Bank (accessed 29 July 2019)

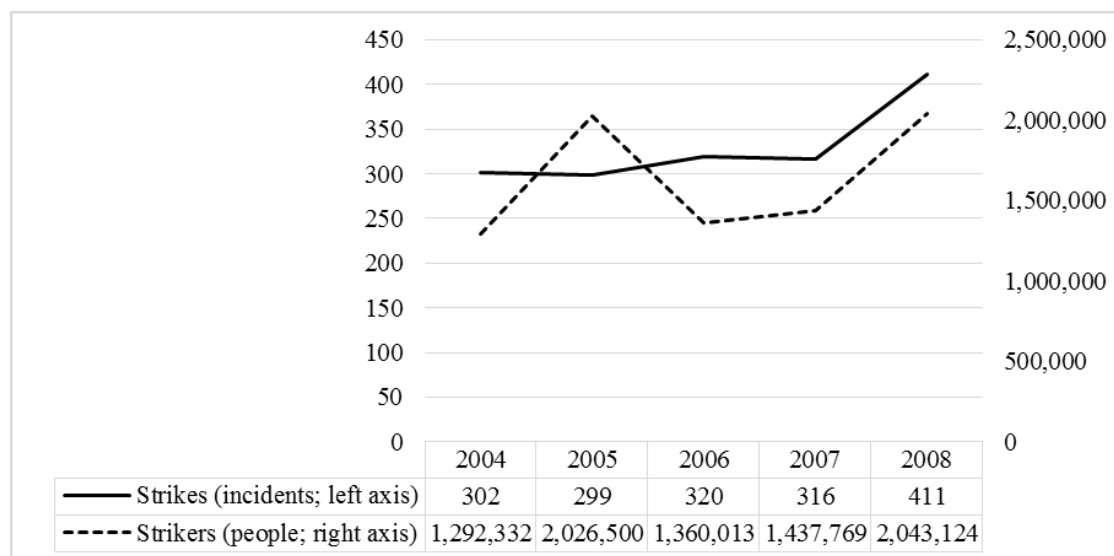
9.3 An Evolution of Labor Institutions after the 1990s

The labor movements from the 1960s to 1990s not only pulled wages up and triggered changes in state policies, and technological investment in business, but also continually transformed labor-related institutions. The critical adjustment happened in the late 1990s, when the crisis was resolved and democracy was consolidated. As we have already done with South Korea and Taiwan, four Brazilian institutions are examined here: the wage regime, the education and training system, the welfare system, and the labor regulations.

The General Situation of Labor Movements in the 2000s

After the early 1990s, the labor movements declined, especially in industrial–urban areas. Many scholars interpreted this trend as a clear sign of the labor movement’s crisis. However, such a conventional view was mistaken in several ways. First, the Landless Workers’ Movement (MST) actively mobilized more in rural areas, focusing on land-related issues and agricultural reform. Second, the Unique Workers’ Central (CUT) effectively collaborated with the leftist party. These movements invigorated the new wave of labor movements in the 2000s. Between 2004 and 2008, the number of total strikes increased continually from 302 to 411 incidents (Boito et al., 2011: 66). Moreover, the number of strikers rose from 1,291,332 people in 2004 to 2,043,124 in 2008 (Figure 9.6).

Figure 9.6: Numbers of strikes and strikers in Brazil, 2004-2008



Source: Boito et.al. (2011: 66-67)

The militancy of these strikes was also maintained, even more so than South Korea and Taiwan. For instance, 25 strikes had more than 10,000 workers involved in 2005. Among these

cases, 9 strikes involved more than 50,000 workers. In 2007 there were 14 incidents with more than 10,000 workers involved. During the same period, there were many *very large-scale strikes* (more than 80,000 strikers) in the automotive, construction, and petroleum industries, as well as postal services (p. 68). For example, in 2005, 160,000 bank workers and 86,000 letter carriers staged strikes. In 2007 at least 360,000 strikers were involved in two major strikes in the automotive industry (p. 69).

The majority of these strikes had offensive demands (i.e., higher wages instead of maintaining the current level) (p. 67). The results of the strikes were also impactful. For example, regarding wage settlement after the strike occurred, only 18.8 percent of wage adjustments in 2003 resulted in being above the Consumer Price Index (inflation rate). This proportion increased to 54 percent and 87.7 percent in 2004 and 2007, respectively (ibid.). These statistics show that the pressure for industrial upgrading and institutional evolution caused by labor movements continued in the 2000s.

The Wage Regime: Sectoral High Wages and Bifurcated Labor Demands

In the mid-1990s, when hyperinflation was under control, the Cardoso government demolished the index-wage system and encouraged “free negotiation” among employers and employees (Silva, 2014: 26, 28), which meant that the state gradually excluded itself from the negotiations.³²⁵

Still, the free negotiation principle did not automatically mean that employers negotiated with their employees. As one said, “Sometimes the only language the owners

³²⁵ The labor unions stepped in to bargain with employers on two levels. First, there was the *convenção coletiva* (collective convention), including sector-wide issues such as minimum wages, and rules for health and safety at work. Second, there was the *acordo coletivo* (collective bargaining agreement), which was the specific settlement mutually formed between management and laborers in each company (Silva, 2014: 29).

understand is the silence of machines on the factory floor” (p. 30).³²⁶ In the 2000s, particularly after the leftist party led the government in 2003, labor strikes rebounded and increased toward the end of the decade. **Table 9.18** shows the main issues surrounding the strikes in Brazil’s industrial sectors between 2000 and 2009. In total, 58 percent of all strikes were related to wages issues, of which the most frequent issue was “wage increase” (355 incidents).

Table 9.18: Main issues for strikes in Brazil, industrial sector, 2000–2009

Issues	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Total ³²⁷	146	117	76	84	66	85	87	90	150	160	1061
Wage increases	40	28	20	26	25	27	32	26	68	63	355
Late payment of wages	40	25	29	14	9	4	14	13	13	16	177
Late payment of 13th wage	13	7	5	2	0	0	2	3	6	9	47
Wage floor	4	4	3	3	2	9	9	10	13	16	73
Profit-related pay	25	28	17	18	17	28	22	33	52	50	290
Bonuses	3	5	6	7	4	3	3	6	12	16	65
Equal pay	4	4	1	2	2	6	1	9	11	7	47
Meal tickets	24	14	6	13	11	17	21	24	41	24	195
Dismissal	15	22	12	15	3	13	13	12	15	32	152
Medical care	16	5	4	3	4	10	14	8	18	17	99
Reduction of working hours	25	9	3	10	4	3	2	6	12	15	89
Career and salary plan	7	4	2	1	5	2	8	12	20	9	70
FGTS deposits	10	7	13	5	1	4	7	6	7	7	67
Transportation	7	5	3	5	1	5	5	5	8	5	49
General stability	10	6	4	6	2	1	1	1	6	11	48

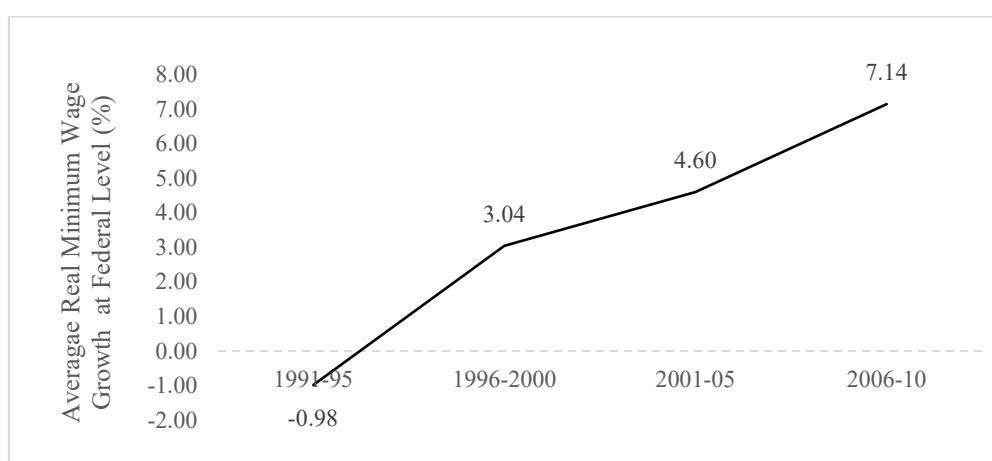
Source: Modified from Silva (2014: 32)

³²⁶ Silva (2014) quoted this line from Sindicato dos Metalúrgicos.

³²⁷ In each strike, strikers demand multiple issues; therefore, the total numbers of strikes presented in the first vertical row are not equal to summation of issues in the columns. Also, the total numbers between 2004 and 2008 in this table is lower than Figure 8.10 because it contained only strikes in the industrial sector.

As a result, wage policies were revised and improved.³²⁸ Three wage rates are worth discussing here. First, let us look at **the minimum wage**,³²⁹ which is very important in terms of guaranteeing a basic salary for unskilled workers. At the same time, the rate was usually used as a *numeraire*, so-called multiplying factors to calculate other types of workers' salary. As illustrated in **Figure 9.7**, the real minimum wage rebounded to a positive trend in the mid-1990s, when hyperinflation was controlled. After the Worker Party, led by Lula da Silva, won the election, the real minimum wage increased rapidly from 597 R\$ in 2003 to 932 R\$ in 2010.

Figure 9.7: Average real minimum wage growth in Brazil, 1990–2010



Source: IPEA (accessed April 15, 2021)³³⁰

³²⁸ Actually, the wage policy had been substantially revised since Cardoso's period (1995–2002). For example, the minimum wage issues were reviewed by the Provisional Decree 1906/97 in 1997. The suspension of the wage contract was provided by the Provisional Decree 1726/98 in 1998. The profit-related pay postponement had to be mutually negotiated between employers and employees. This protection was supported by the Provisional Decree 1029/94 and Law 10.101 / 2000. For more details, see Silva (2014: 27). However, these were not covered here.

³²⁹ The minimum wage was introduced by the government in 1940. At that time, there was no "national rate." It had 14 rates based on the regions of workers. The rates were unified in 1984 and applied as the national standard to all regions. The minimum rate was used to enhance the well-being of workers in the 1950s. After the crisis in the early 1960s and the collapse of democracy, the military government transformed the minimum wage into an instrument for economic stabilization (Lemos, 2004: 223–4). The rate was aligned, by formula, to the inflation index. Between the mid-1980s and mid-1990s, when hyperinflation occurred and the index underestimated real inflation, real minimum wages collapsed. This situation was recovered when the crisis ended in 1995.

³³⁰ Other works related to real wages calculation in the same period are Berg (2010) and Mayer (2016). Berg's dataset was collected in January of every years and measured in 2010 R\$. The result was crosschecked with Mayer (2016: 124). While these articles used different based year, their results were consistent.

According to Lemos (2004), the negative effect of Brazil's minimum wages on employment was very small in the long term. In the short term, "a 10 percent increase in the minimum wage appears to reduce total hours worked by no more than 0.16 percent, which decomposes into a 0.14 percent decrease in hours per worker, and a 0.02 percent decrease in jobs" (p. 252). This means that the minimum wage increases did not destroy job creation. In contrast, this increasing trend of real minimum wages had a positive effect, namely, decreasing income inequalities. For example, the GINI coefficient declined from its peak of 0.606 in 1989 to 0.555 in 1999 (Green et.al., 2000: 32).³³¹

Second, there was **the average labor earnings** classified by occupation. As seen in **Table 9.19**, the average earnings of the lowest-income groups, farming and low services, saw the most improvement between 1983 and 2013. Moreover, professionals and salespeople and laborers gained a moderate pace of wage increase, ranging between 1 and 2 percent per year. Lastly, management and specialists gained the least wage growth, below 1 percent per year. This picture is twisted if we take productivity into consideration.

Table 9.19: Percentage distribution (N %), average monthly labor earnings (wage), and percentage change of wages (%) in Brazil in 1993 and 2013

Occupational group	1983		2013		Percentage change of wages (%)	
	N %	Wage (USD/month)	N %	Wage (USD/month)	Period 1983-2013	CAGR ³³²
Management	7	2,353	7	2,417	3	0.13
Professionals	5	1,567	10	2,099	34	1.40
Specialists	14	954	18	990	4	0.18
Sales and laborers	39	568	38	791	39	1.59
Low services	16	326	19	513	57	2.18

³³¹ Other indexes such as the mean log deviation and Theil index showed the same trend (Green et.al., 2000: 32).

³³² CAGR is compounded annual growth rate.

Occupational group	1983		2013		Percentage change of wages (%)	
	N %	Wage (USD/month)	N %	Wage (USD/month)	Period1983-2013	CAGR ³³²
Farming	19	325	8	523	61	2.29
Total	100	695	100	996	43	1.73

Source: Modified from Maia and Sakamoto (2018: 641)

Table 9.20 shows the relative wages and their annual growth, which is created by weighting the average earnings with labor productivity (GVA³³³). Interestingly, we can observe that the relative wage of management and farming workers gradually declined (cheaper). Meanwhile, specialists' relative wage slightly increased. While low-service workers saw very high growth in their relative wage, this was because of the very "low" level of wages in the early phase of measurement. If we look at the relative wage itself, low-service workers still gained the least level of wages compared to others. In the case of salespeople and laborers, while wages moderately increased, their productivity stagnated so that the relative wage rose.

Table 9.20: Gross value-added per worker (GVA; productivity), relative wages, and percentage change of relative wages (%) in Brazil in 1993 and 2013

Occupational group	1983		2013		Percentage change of relative wages (%)	
	GVA	Relative wages	GVA	Relative wages	Period1983-2013	CAGR
Management	2,311	1.02	2,610	0.95	-7.0%	-0.3%
Professionals	2,667	0.59	2,752	0.76	29.8%	1.2%
Specialists	2,764	0.31	2,867	0.35	11.7%	0.5%

³³³ GVA is gross value-added per worker.

Occupational group	1983		2013		Percentage change of relative wages (%)	
	GVA	Relative wages	GVA	Relative wages	Period 1983-2013	CAGR
Salespeople and laborers	2,589	0.22	2,578	0.31	40.2%	1.6%
Low services	2,626	0.12	2,609	0.20	58.9%	2.2%
Farming	559	0.58	1,698	0.31	-47.0%	-3.0%
Total	2,219	0.31	2,582	0.39	23.3%	1.0%

Source: Modified from Maia and Sakamoto (2018: 641, 649)

According to these relative wages, companies related to farming and low services had more incentives to absorb workers (labor-absorption strategy). In contrast, companies that tended to use salespeople and industrial laborers were encouraged to replace their employees with machines and educated workers (labor-saving strategy).³³⁴ Under this condition, the mid-range skilled workers faced the worst situation because employers searched for either low-paid or high-paid educated workers. These wages and employment should be defined as the *bifurcated labor market*.³³⁵

Third, and finally, there was **performance-based payment**. As discussed in Chapter 4, South Korean companies applied a performance-based payment system in the 1990s. In exactly the same period, a similar method, *profit-related pay*, was initially introduced into Brazilian companies. The main goal was to align the profits (performance) of the company with workers'

³³⁴ Sometimes, this process happened across sectors. For instance, Camargo Corrêa Group, a large construction company, faced the upsurge of relative wages in the 2000s (Silva, 2014: 640). To survive, the firm diversified into more labor-saving sectors such as cement and real estate, and it became one of the largest conglomerates in Brazil (Schneider, 2013: 49).

³³⁵ In very special cases, firms adopted the labor-complementing strategy (absorbed workers, but also invested in process technologies). For example, the eighth largest firm in Brazil, JBS, which had annual revenue comparable to the Bank of Brazil, operated in the food-processing industry. This enterprise represented the labor-complementing strategy because it absorbed a huge number of workers. Although it blended productive low-paid workers with new production technologies, this was not the standard pathway of Brazilian firms.

salary. In Brazil, this was accepted by both employers and employees because they mutually gained benefits. On the one hand, employers could make sure that their labor costs correlated with labor productivity. On the other hand, workers could share higher economic surpluses stemming from their toil.

Looking back to **Table 9.18** (above), approximately 27.33 percent (290 cases) of the total number of strikes in the industrial sector between 2000 and 2009 were associated with “profit-related pay.” Moreover, in 2011 there was a 37-day strike in the Volkswagen plant for profit-related pay (Silva, 2014: 32).³³⁶ This was the longest private-sector strike since the 1990s. Indeed, in many cases, they did not debate whether or not the method should be applied, but argued about “the fair rate” and “fair assessment.” **Table 9.21** shows some examples of the profit-related pay applied by seven firms. It was substantial because the gap between wage floor and profit-related pay was huge, ranging from 5 (*Coelba Neoenergia*) to nearly 40 times (*Cemig*) monthly earnings.

Table 9.21: Profit-related pay in electrical-sector companies in Brazil, 2010

Company or group	Profit-related pay per worker (R\$)	Wage floor (R\$)	Notes
AES Electropaulo	8,630	960	
AES Tietê	27,776	850	General services
		4,746.72	Engineer
Coelba Neoenergia	5,233	986.00	
Cemig	36,695	921.86	
Copel	7,317	NA	
Electrobras	15,868	NA	
Tractebel (GDF Suez)	18,135	NA	

Source: Modified from Silva (2014: 35)

³³⁶ Another case occurred in the Volvo plants in 2012. After three days of strikes, the company agreed to pay R\$ 25,000 per worker for 4,100 employees (Silva, 2014: 32).

According to the dynamics of these three wages in Brazil, in the 2000s the average earnings of Brazilian workers steadily increased to approximately 25 percent of US wages (Maia and Sakamoto, 2018: 641), which is comparable to what successful East Asian nations gained in the 1990s. For example, Singaporean and South Korean workers obtained wages of approximately 29 and 30 percent of US workers (Kim Eun-Mee, 1993: 237). So, we can see that Brazilian labor costs increased because the labor movements deliberately bargained for this. This made Brazil fight harder with other cheap-labor countries for low-cost products. Therefore, Brazil had to upgrade itself as much as East Asian nations in the 1990s in order to survive the international trade competition.

In conclusion, Brazil's wage institution in the 2000s possessed three features. First, the minimum wages and average earnings of workers increased substantially from the 1990s (the crisis period). Second, the relative wages of mid-range-salary workers (i.e., sales and laborers) increased very fast so that employers had two strategic responses. On the one hand, they absorbed more cheap workers (i.e., low services); and, on the other hand, they installed more machines, as well as hiring more specialists (including technicians) to work with these installed technologies. Third, because of these strategies, Brazil's wages and employment were bifurcated and they were encouraged to deploy either cheap, low-skilled or very expensive high-skilled workers.

Education and Training System: Inclusive Basic Education and Exclusive Higher Education

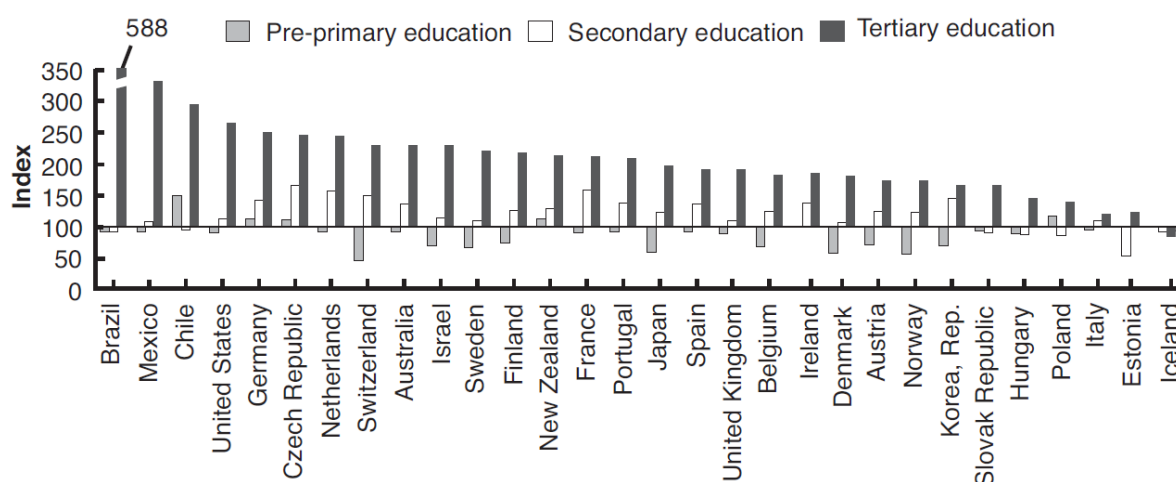
Before 1995 Brazil's education was very limited in both quantitative and qualitative terms. In 1993, for example, around 90 percent of the population aged 26–30 had engaged in primary education, of which only around 40 percent finished primary education (Bruns et al., 2012:

xxi). In secondary schools, they can be considered “dropout factories” – failing to graduate 60 percent of their students (p. xxvii). Therefore, less than 20 percent of the population aged 26–30 could enter tertiary-level education.

In order to supply enough educated workers to the labor market during the economic expansion (1964–85), the government could not gradually and comprehensively transform the whole education system; instead, it chose to attentively inject resources into specific universities and research institutions. Even at this time, Brazil spent almost six times as much per student in tertiary education as at the primary level (**Figure 9.8**).³³⁷

Figure 9.8: Spending per student at different education levels relative to unit cost in primary education, OECD and selected developing countries, 2007

Primary education = 100



Source: Reprinted from Bruns et.al. (2012: xxiv)

³³⁷ The first higher education was the Imperial School of Law, established in the nineteenth century, after the Portuguese royal family fled Napoleon from Portugal to Brazil (Balbachevsky and Schwartzman, 2010: 87). In other words, higher education had been emphasized by the government since the colonial era. In the Federal Constitution of 1988 (article 206), it guaranteed free public higher education (Neves and Martins, 2017: 5). Brazil’s expenditure per student on tertiary education institutions was around 150 percent of GDP per capita. This was, at least, twice higher than Turkey, Switzerland, the USA, Sweden, Hungary, and Canada (Mello and Hoppe, 2005: 9).

Furthermore, institutions such as the Aeronautics Institute of Technology (ITA) supplied highly educated and well-trained researchers to the computer industry (the 1970s) and aircraft industry (the 1980s). However, only rich families could afford to send their children to prestigious institutions and universities.³³⁸

As a result, similar to South Korea, Brazil created the university-based meritocracy. However, unlike South Korea, this kind of meritocracy failed to lure low-income families to invest in their children's education. Indeed, the reason was not irrationality but budget constraint (Bursztyn, 2016: 1125). In other words, they were too poor to invest in education and reap the long-term benefits, which is the luxurious choice. This situation quickly changed during the post-inflationary crisis period. Three sets of favorable conditions had a positive impact on Brazil's basic education: (1) the education reform during the Cardoso government, (2) the wage revival, and (3) welfare policies during the Lula government.

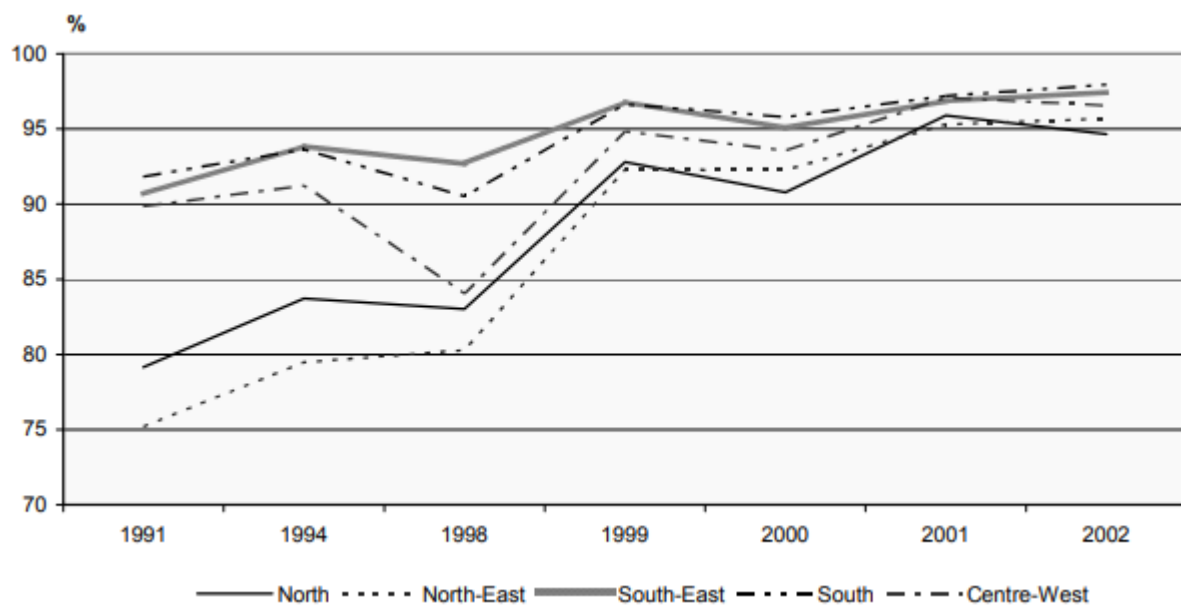
In the late 1990s, the Cardoso government successfully wiped out hyperinflation and brought back economic stability. Afterwards, Cardoso hurried to reform the education system by declaring the comprehensive legal framework for basic education (The National Basic Education Law) in 1996.

Beyond the legal enactment, he implemented three policies. First, he created a special fund for financing sub-national spending on primary and lower-secondary education (FUNDEF) in 1996, the aim of which was to equalize the imbalance between basic education and prestigious tertiary-level education. Also, the fund set out to equalize financing across regions, states, and municipalities (p. xviii; Mello and Hoppe, 2005: 4). The result was

³³⁸ In 1993, for instance, the most deprived families (1st income-quintile group) had schooling experience of only around four years, but the richest families (5th income-quintile group) gained approximately eight years, which is twice as high as the poorest (Bruns, 2012: xxii).

impressive. As portrayed in **Figure 9.9**, the net enrolment rate improved in all regions and their disparities were reduced.

Figure 9.9: Net enrolment rates of primary and lower-secondary education in Brazil, 1991-2002



Source: Reprinted from Mello and Hoppe (2005: 7)

The Cardoso government also reformed the national yardstick of academic performance (SAEB) and applied it through schools across the country. This measure was coupled with the comprehensive Index of Basic Education Development (IDEB). This accurate information helped the government to manage government resources efficiently and effectively (Bruns, 2012: xix) since Brazil's public spending on education was very high (p. xxiii). Finally, the government declared affirmative measures for poor families named "Bolsa Escola" (p. xvii). All these policies gradually reconstituted the foundation of Brazil's education system by focusing on basic education.

After 1995 labor organizations reorganized and their movements continually pulled wages up. Under the post-crisis period, wages increased faster than the inflation rate and therefore workers' purchasing power recovered. As we discussed this issue in the previous section it is not necessary to explore it further here. The point is that the most deprived families gained higher purchasing power and could afford more for their children's education in the 2000s. This was endorsed when the Lula government won the election in 2003.

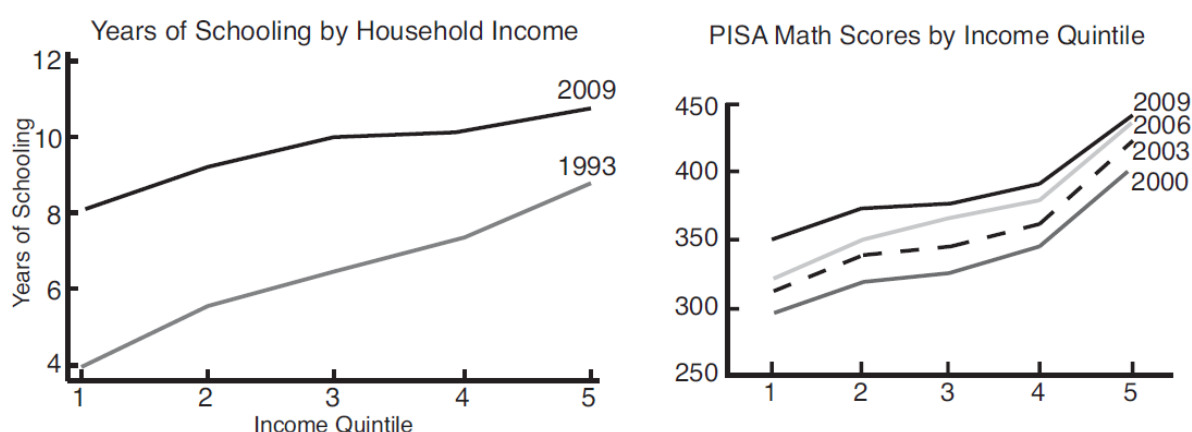
After 2003 the Lula government inherited all the measures initiated by Cardoso and additionally imposed the conditional cash-transfer program named "Bolsa Familia." The program gave financial support to the most deprived families, with certain "conditions" attached. For example, the beneficiary families needed to send their students to schools and participate in health programs. All these conditions, on the one hand, transferred financial resources to the beneficiaries. On the other hand, it tied those families to the "productive" behaviors and services. From 2002 to 2009, coverage of the program increased from 8.2 million students with 3.4 billion R\$, to 17.7 million students with 11.9 billion R\$ (p. xix).

Consequently, Brazil's education improved rapidly. As shown in **Figure 9.10** (left-hand side), in 1993 the schooling years of the poorest Brazilians increased from approximately four to eight years. In the richest group, they attained almost nine years in school. These statistics improved significantly in 2009. The most deprived and the most privileged group gained experience of around eight and eleven years in school, respectively. The gaps tightened from four years in 1993 to three years in 2009. These were examples of numerical improvement, but the quality of Brazil's education was obviously also improving.

Figure 9.10 (right-hand side) also shows the quality of Brazil's basic education, measured by PISA (Programme for International Student Assessment) math scores. All income quintile groups got higher scores. Moreover, the most deprived group gained an approximately

fifty-point increase within a decade. The overall scores of the nation increased from 368 to 401 points, which was the third largest on record (p. xvii). Although Brazil's basic education indicators (i.e., enrolment rates and PISA scores) were far lower than other OECD countries, its improvements were too high to be ignored.

Figure 9.10: Average schooling years³³⁹ and PISA scores by income quintile, Brazil, 1993 and 2009



Source: Reprinted from Bruns et.al. (2012: xxii)

When these basic education levels improved, they supplied more human resources to higher education. Together, the government allowed the private sectors to establish and operate higher education in 1999 (Neves and Martins, 2017: 6). Hence, after 25 years of stagnation (1970–95), the enrolment rate for higher education grew sharply by 360 percent, from approximately 1.76 million students in 1995 to 8 million in 2015 (p. 11), and many of these went to private institutions. Of these students, 19 percent studied education, 21.2 percent

³³⁹ Schooling years between 1981 and 1999, see Green et.al. (2000: 32)

studied science and engineering,³⁴⁰ 15.26 percent studied health sciences, and 37.43 percent studied applied social sciences (p. 13).

The graduate-level institutions and universities were very important and closely linked to industrial innovations. In Brazil, the number of Master's and doctoral programs increased substantially from 578 in 1975 to 3,634 in 2008 (Balbachevsky and Schwartzman, 2010: 89). In terms of quality, the government reformed and imposed a strict evaluation method on the existing graduate programs in 1998.³⁴¹ This helped to raise the quality of lecturers and researchers to qualified levels. For example, in doctoral programs in 2007, 64 percent of lecturers actively did research, published, and obtained external funds (p. 94). Furthermore, 56.5 percent had international connections with the academic world (p. 96).

These lecturers and researchers utilized their funds and connections to publish their works. On average, lecturers who taught in doctoral and Master's programs produced around 20 and 15 papers within 3 years. However, the standard deviation of these samplings was high, so the performances of lecturers were varied (p. 96). The quality of publications was also acceptable. For example, 33.1, 31.5, and 9.4 percent of lecturers published in a peer-reviewed journal with foreign co-authors, local co-authors, and no co-author, respectively. Only 8.8 percent did not publish or published in non-reviewed journals (p. 97).

³⁴⁰ Including science, mathematics, and computing (5.68%), and engineering, production, and construction (15.52%) (Neves and Martins, 2017: 13). The enrolment classified by subject in Master's degree and doctoral degree programs was presented in Balbachevsky and Schwartzman (2010: 90).

³⁴¹ Before the 1998 reformation, there was a slackened process of evaluation. Almost all institutions got two of the highest ranks (A and B) on a five-rank scale. In other words, there was no discriminatory power. In 1998 the government reformed the evaluation method, as well as committees, and replaced the old scale with a new seven-rank scale. In 2008 only 17.8 percent of doctoral programs got two of the highest ranks (Balbachevsky and Schwartzman, 2010: 91).

Welfare System: Flexicurity and Hard Work

Brazil's welfare functions related to workers varied. In this section, I shall discuss three important elements: (1) job security and flexibility, (2) workloads and hardship, and (3) other measures such as labor inspectors, income maintenance schemes, and affirmative programs.

Job security and flexibility

In the 1980s, by law, a fixed-term contract was limited to two years, with an additional year for renewal. When workers had already been hired for longer than three years, they had rights to be employed by an open-term contract. In this case, if employers wanted to lay workers off, as unfair dismissal, they needed to compensate 40 percent of their accumulated savings in the "Severance Indemnity Fund (FGTS)."³⁴² These mechanisms were expected to enhance workers' job security and improve job tenure.

However, in practice, employers used various tactics to avoid the law. For example, employers typically ended the contract at the second or third year so that they did not need to grant the open-term contract. This weakened the preferable effects of the fund: the turnover rate did not reduce enough, and job tenure did not increase to the ideal situation. For instance, in the 1990s, around 24 percent of waged workers worked for the same enterprise for more than five years, but approximately 46 percent worked continually for less than one year

³⁴² The Fundo de Garantia por Tempo de Serviço (FGTS) was established in 1966. It was designed to insure workers' job-security issues, namely, unfair dismissal, justified termination of employment by the worker, end of the enterprise activity, and buying a house (Marshall, 2004: 6). Employees needed to deposit a particular share (8 percent) of their incomes into the fund every month. Then, when they were laid off, before 1988, the compensation for dismissal was 10 percent of their individual capitalization funds. However, because of the low compensation rate, employers and employees usually reached an agreement, that is, employees resigned to access the whole amount of collected funds. The government wanted to resolve this problem so it increased the rate to 40 percent in 1988 (p. 8).

(Marshall, 2004: 8).³⁴³ Moreover, those firms that operated in the informal sector did not comply with the law.

In the mid-1990s, Cardoso's government called for various reform packages, including job-security issues. The government generally made the labor market more flexible. For example, in 1994, the government enacted the Law on Cooperatives, which released the cooperatives and their employees from employment relationship (Berg, 2010: 8).

In 1998 the government enacted Provisional Decree 1709 and introduced an innovative scheme called "the hour bank." "If there is no demand for production, there is no work; conversely, if demand increases, workers are allowed to work overtime beyond a certain (according to the old labor law) threshold, and a system of compensation is set up whereby hours earned during production downtime are used when needed to supply products and goods" (Silva, 2014: 23). Under this system, employers did not lay workers off when demand dropped considerably, especially when it was a temporary phenomenon.

This system was developed in response to the two previous decades of production fluctuation (1985–95) so that workers reluctantly accepted this system in order to preserve employment. While the unions did not oppose the hour bank, they did not allow employers to utilize "working time" in the bank without constraints. For example, automobile assembly-line workers mutually bargained for the maximum used and credited working time at 44–48 hours per week. Beyond this, it was overtime with premium payments (p. 36).³⁴⁴

Overall, we can see that the Cardoso government tried to accomplish two virtually contradictory things: security and flexibility (*flexicurity*). It imposed various policies to

³⁴³ This also shows the bifurcated features of the Brazilian labor market. On the one hand, the large proportion of skilled and educated workers got a long-term contract (more than five years). On the other hand, at the same time, there was a very large number of workers working in very fragile conditions and on short-term contracts.

³⁴⁴ When workers leave the firm, "in many cases, hours receivable are paid as overtime, while hours owned are deducted from the worker's severance payment" (Silva, 2014: 37).

maintain employment³⁴⁵ and increase job tenure by increasing the cost of lay-offs and unfair dismissal (via penalty rate). At the same time, it provided internal flexibility of working time management (via the hour bank) to employers. In Sao Paulo, “the share of workers with shorter tenure (up to six months) declined during the 1990s, from some 20% in 1991 to 14% in 2002 for protected wage employment, and from 60% to 49% for non-protected wage employment, with corresponding increases in the average length of job tenure” (Marshall, 2004: 19).

Workloads and hardship

In the 1980s, like South Korea and Taiwan, by law the maximum working time was set at 8 hours per day and 48 hours per week. Overtime was also limited to two hours daily. In practice, one survey reported 27 percent of workers in Sao Paulo (who represented the urban industrial areas) going over the 48-hour limit. On average, in the manufacturing sector, the length of working hours was 46 hours weekly (Marshall, 2004: 9). In the 1990s when South Korea and Taiwan revised their labor laws and reduced the legal maximum working time to 42–44 hours per week, the Brazilian government contrarily declared the hour bank and lengthened the restrictions on working time to 10 hours per day with extra payments (p. 16). All of this reflected the fact that Brazilian laborers worked relatively hard.

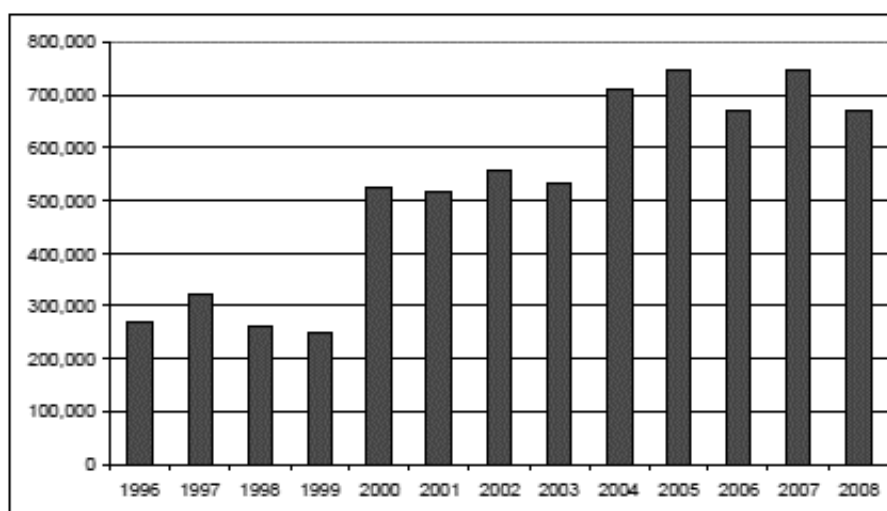
³⁴⁵ There were other programs for maintaining the level of employment or creating job posts in Brazil; however, we could not explain all of this in this section. For example, in 1994 the government established the *Programa de Generación de Empleo e Ingresos* (PROGER) for creating jobs in SMEs. In 1996 the PROGER created (both directly and indirectly) 107,000 jobs (Marshall, 2004: 32). In 1996 the government announced the project named “*Plano Nacional de Qualificação do Trabalhador* (PLANFOR).” The aim of this project was to train workers who were unemployed or at risk of losing their jobs. In 2003 The First Employment (*Primeiro Emprego*: PPE) was implemented to help young workers find jobs. It subsidized young workers (16–24 years old) who (1) did not have any experience in the job market, (2) did not complete secondary education, and (3) came from poor families (p. 31). The National Employment System of Brazil (SINE) also actively mapped unemployed workers with the existing posts.

Inspections and unemployment-related measures

There were two major measures for informally employed and unemployed persons: labor inspector and unemployment insurance.

A labor inspection was the main mechanism used to govern private enterprises and make sure that they followed the laws. Putting it into the institutional framework, the labor inspection determined how labor institutions effectively conducted related agencies. In the mid-1990s, like many other measures, the Cardoso government reformed the inspection's management in two ways. First, the performance-based payment was granted to inspectors. Second, the indicators of performances were explicitly targeted, such as numbers of formalizing workers and the collection of employer contributions to the FGTS (Berg, 2010: 18). In the previous period, inspectors gained fixed wages and had no incentives to strictly examine the firms. However, after their benefits were aligned to the explicit goals, the results improved. For example, the number of registered (formalized) workers, as a result of labor inspections, increased from fewer than 300,000 people in 1996 to approximately 750,000 people in 2005 (**Figure 9.11**).

Figure 9.11: Number of workers registered as a result of labor inspection, Brazil, 1996-2008



Source: Reprinted from Berg (2010: 18)

In the worst case, when workers lost their jobs, the government also helped them via unemployment insurance. In Brazil the insurance was established in 1986 and was financed by the fund for worker protection (FAT) from 1988. Generally, the unemployment support was calculated by the workers' latest salary but it could not be lower than the minimum wage. The duration of support was based on the employment record and ranged from three to five months.³⁴⁶ The insurance's annual coverage increased, on average, from 156,000 unemployed workers in 1986 to almost 4.8 million unemployed workers in 2002 (Marshall, 2004: 29). While the coverage expanded from 2001 to 2007 (p. 28), the insurance expenditure per GDP remained the same, at around 0.4 percent or R\$12 billion (Berg, 2009: 2).

Labor Regulations: Unionization and Union Pluralism

In Brazil there were four phases of labor regulation related to unionization and strikes. First, before 1945, there was *the prohibition phase*. According to various labor-related laws,³⁴⁷ establishing a union was barely recognized and declaring a strike was a criminal action. For example, while the Vargas government and the Constitution of 1934 acknowledged the trade unions, they did not provide the right to strike (Gunther, 2017: 20). The Constitution (1937), the Criminal Code (1940), and the Consolidation of Labor Laws (1943) criminalized the strikes and lock-outs, which were identified as being “anti-social resources, harmful to work and to the capital, and incompatible with the higher interests of national production” (p. 21).

³⁴⁶ There were other details of the insurance such as eligibilities and the beneficiaries and required documents. See Berg (2010: 29).

³⁴⁷ The important laws before 1900 were the Federal Constitution (1824 and 1891), the Sinimbu Law (Law of Work for Hire of 1879), and the Criminal Code (1890).

Later, between 1945³⁴⁸ and 1988, came *the regulation phase*. The turning point happened in 1946, when President Eurico Gaspar Dutra enacted Decree-Law number 9070 and clearly stated that the government recognized “the right to strike and discipline it” (p. 22). However, there were too many restrictions, “which, in practice, made its exercise almost impossible” (p. 23). In 1965 the government enacted the Rural Worker Statute, which allowed rural workers to establish unions (Houtzager, 2001); although, similar to industrial unions, their strikes were firmly restricted.³⁴⁹ Generally, in this phase, the state allowed workers to organize, but cautiously regulated the strikes. This principle was maintained by the Constitution (1967) and other labor laws before the 1980s.

The third period, *the liberalization phase*, arrived when the political regime had transformed from being authoritarian to a democracy. The Constitution (1988) “introduced a marked liberalization of labor relations in Brazil” (Mayer, 2016: 103) in the sense that the state deliberately stepped back from labor relations. For example, “the Ministry of Labor could no longer deny registration to union, except in special case” (ibid.); therefore, autonomous unions were steadily founded and increased in the 1990s. These autonomous unions were strong enough to establish their illegal³⁵⁰ central labor organizations. Until the 1990s, the three largest central labor unions were the Unique Workers’ Central (CUT), the Union Force (FS), and the General Workers’ Federation of Brazil (CGTB) (Galvão, 2016: 272); nevertheless, the state tolerated them.³⁵¹

³⁴⁸ While Brazil did not have a law that recognized the right to strike in 1945, the representative of Brazil signed the “Minute of Chapultepec” in the important “Inter-American Conference on Problems of Peace and War” forum in Mexico. It quickly recommended the member countries.

³⁴⁹ However, as we can see from the previous sections, organized workers could only pursue this very narrow legal space to mobilize strikes against bad working conditions and they demanded change.

³⁵⁰ The state did not automatically recognize these organizations. The Ministry of Labor at the time even declared that the CUT was illegal under the existing labor code (Roett, 1999: 80).

³⁵¹ With the exception of some cases that violated the government’s interests. For example, the Cardoso government harshly repressed the *petroleiros* (oil workers) strike in 1995 because these organized workers resisted the privatization of Petrobras (Mayer, 2016: 108).

The Constitution (1988) also guaranteed the union autonomy (Bensusán, 2016: 139); henceforth the autonomous unions could bargain with employers without interference from the labor court (Mayer, 2016: 103). Simultaneously, the right to strike of workers, which included public servants, was protected.³⁵² While in the mid-1990s President Cardoso willingly reformed the labor market, he focused on job flexibility instead of controlling unions. He gradually decentralized bargaining activities such as wage increasing, profit sharing, and working hours to bilateral platforms within the companies or between labor unions and employers' associations (Neto et al., 2016: 5).

In the early 2000s, the Worker's Party (PT) won the presidential election and created a new era, *the pro-worker phase*. Interestingly, while President Lula was labeled a leftist, he largely did not change Cardoso's measures regarding "flexicurity," focusing mainly on collective bargaining endorsement and the well-being of workers (i.e., minimum wages and *Bolsa Familia*). In brief, he created three sets of policies that moved the labor institutions into their most recent phase.

First, Lula supported ten other union federations to flourish after 2004. These included: The National Coordination of Struggles (CONLUTUS: 2004); the New Union Workers' Federation (NCST: 2005); the Interunion (Intersindical: 2006);³⁵³ the General Workers' Union (UGT: 2007); the General Federation of Working Men Women of Brazil (CTB: 2007); and Brazilian Unions' Central (CBS: 2012) (Galvão, 2016: 272). While these union federations supported the leftist government, they did not fix themselves to Lula's party. For example, CONLUTUS aligned with the United Socialist Workers' Party (PSTU) and generally attacked the policy stance of the Lula government (p. 273).

³⁵² This was very important because, according to the laws in the previous period, strikes in public organizations risked being criminal actions (i.e., anti-social resources and incompatible with the interests of national production).

³⁵³ The *intersindical* then separated into two organizations. One of them developed to establish *the Central of Working Class* in 2014 (Galvão, 2016: 27).

Second, the Lula government created policy platforms, namely, the National Labor Forum (FNT) and Council for Economic and Social Development (CDES), to deliberate on proposals from labor unions. These forums encouraged the state, workers, and employers (so-called tripartite) to discuss important policies together. While these platforms were criticized in many aspects in relation to certain inefficiencies and obstacles, they made some progress. Antonio Augusto de Queiroz, the director of documentation of DIAP,³⁵⁴ evaluated that “except for public service pension reform and changes in the labor rights of employees of small and micro businesses, [the government] has behaved in agreement with the thinking of most of the labor movement” (Galvão, 2014: 186).

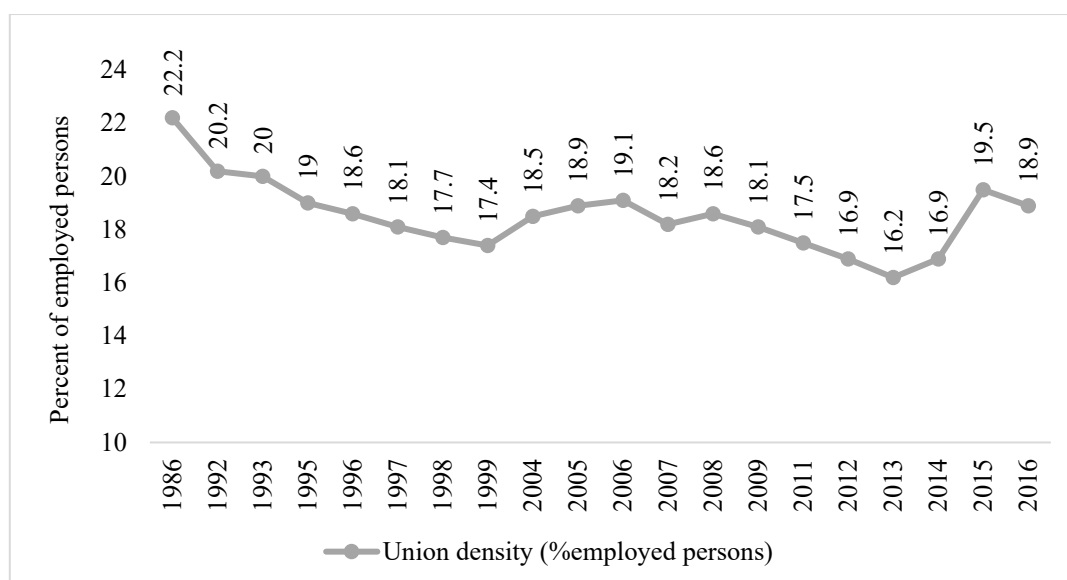
Third, in 2008 the Lula government granted legal recognition to the union centrals and allowed them to collect union fees from their members (Neto et al., 2016: 5). Under these institutional adjustments, which endorsed the collective rights of workers, the labor court’s practices also congruently changed. For example, “the judicial branch, where there are no longer classist judges, has always wielded enormous power in resolving conflicts and imposing labor conditions, by creating – and enforcing – new rights through a version of arbitration consented to by at least one of the parties” (Bensusán, 2016: 150). Hence, from 2008, the unions could engage in the policy platforms and mobilize more easily.

As we can see in **Figure 9.12**, the union density reflected these institutional evolvments. From 1992 to 1999, Brazil liberalized the economy as a whole, including the labor laws. While it provided more “rights” to unionize and declare strikes, the restrictions were still high. Together, the government also imposed policies for job flexicurity (i.e., preserved the employment rate with higher fluctuating working time via the hour bank), which discouraged workers from unionization. The negative trend of union density continued until

³⁵⁴ Departamento Intersindical de Assessoria Parlamentar (Interunion Department of Parliamentary Advice: DIAP).

the Lula government assumed power in 2003. The density increased from 2004 to 2007, when it was reversed again by the effect of the US Sub-Prime Crisis.

Figure 9.12: Brazil’s union density from 2004 to 2016, percentage of employed persons



Source: Arbache (2008: 137) and ILOSTAT (accessed March 24, 2020)

Some interpreted Brazil as a very low-union-density country; however, we should pay more attention to the “strategic industries.” As shown in **Table 9.22**, most Brazilian strategic industries had very high union density. For example, the first-wave strategic industries, such as metallurgical products and textiles, were a high-density group unionizing around 34.5 and 35.9 percent of industrial employment, respectively. The second-wave industries that had high density were electric and electronic products (36.4 percent), mechanical products (36.4 percent), vehicles and auto parts (45 percent). Finally, the oil industry, financial institutions, and other industrial services were a very high-density group and had more than 50 percent unionization rates.

Table 9.22: Union density, classified by standard deviation, mean values between 1986 and 1999

Group	Mean of unionization rates (percent)
<i>1. Medium or low-density (up to one standard deviation)³⁵⁵</i>	
Other services	2.9
Clothing	8.8
Civil construction	8.9
Wood and furniture	12
Commerce	13.4
<i>2. High-density (up to two standard deviation)</i>	
Metallurgical products	34.5
Textiles	35.9
Electric and electronic products	36.4
Mechanical products	37
Communications	44.7
Vehicles and auto parts	45
<i>3. Very high-density (three or more standard deviation)</i>	
Oil refining	52.2
Financial institutions	55.2
Industrial services	59
Oil, gas, and coal	65.1

Source: Arbaché (2008: 138)

These highly unionized workers engaged with three recognized union centrals: CUT, FS, and UGT. As illustrated in **Table 9.23**, these three union centrals facilitated more than 60 percent of total unionized workers, and the CUT was the largest. Beyond the industrial union,

³⁵⁵ Selected only 5 industries out of 21 low- and medium-density industries. The upper bound of this group was 32.9 percent belonged to the transport services sector.

the CUT also participated with the activities of the rural union movements and land-reform agendas. It worked closely with the National Confederation of Workers in Agriculture (CONTAG) (Welch and Sauer, 2015: 16). Now we can see that Brazil developed union pluralism and sophisticated collaboration between the union centrals from the 2000s.

Table 9.23: Union centrals' membership in Brazil, percentage of total unionized workers, 2008 and 2012

Year	2008	2012
CUT	30	36.7
FS	20	13.7
UGT	15	11.3
Others ³⁵⁶	35	38.3

Source: Amorim et.al. (2019: 376) and Galvão (2014: 189)

The Bifurcated Labor Institution: Its Complementarities and Effects

In a nutshell, this thesis classifies that Brazil's labor institutions as "bifurcated" owing to its lack of a single, coherent set of institutions.³⁵⁷ In reality, there were two sub-institutions that operated in Brazil's economy, presented in **Table 9.24**. The first was "high-equilibrium sub-institutions" categorized by high wages, high education, high job tenure, and high unionization

³⁵⁶ In 2012 another 9.2 percent and 8.1 percent of unionized workers were affiliated with the General Federation of Working Men Women of Brazil (CTB) and the New Union Workers' Federation (NCTS), respectively (Galvão, 2014: 186).

³⁵⁷ The bifurcated economic institutions are also found in other large countries. Kenneth Galbraith, for instance, portrayed the United States as the dual economy and dual labor market. Dunn and Pressman (2005: 181) summarize Galbraith's argument, "Not everyone is employed in large corporations. Some people will work for the smaller firms that comprise the market system. These people will be at a disadvantage compared to planning sector workers and will get paid considerably lower wages".

rates. In very sharp contrast, the second category was “low-equilibrium sub-institutions” that consisted of low wages, low education, low job tenure, and low unionization.

Table 9.24: Characteristics of the Brazilian Bifurcated Labor Market and its sub-institutions

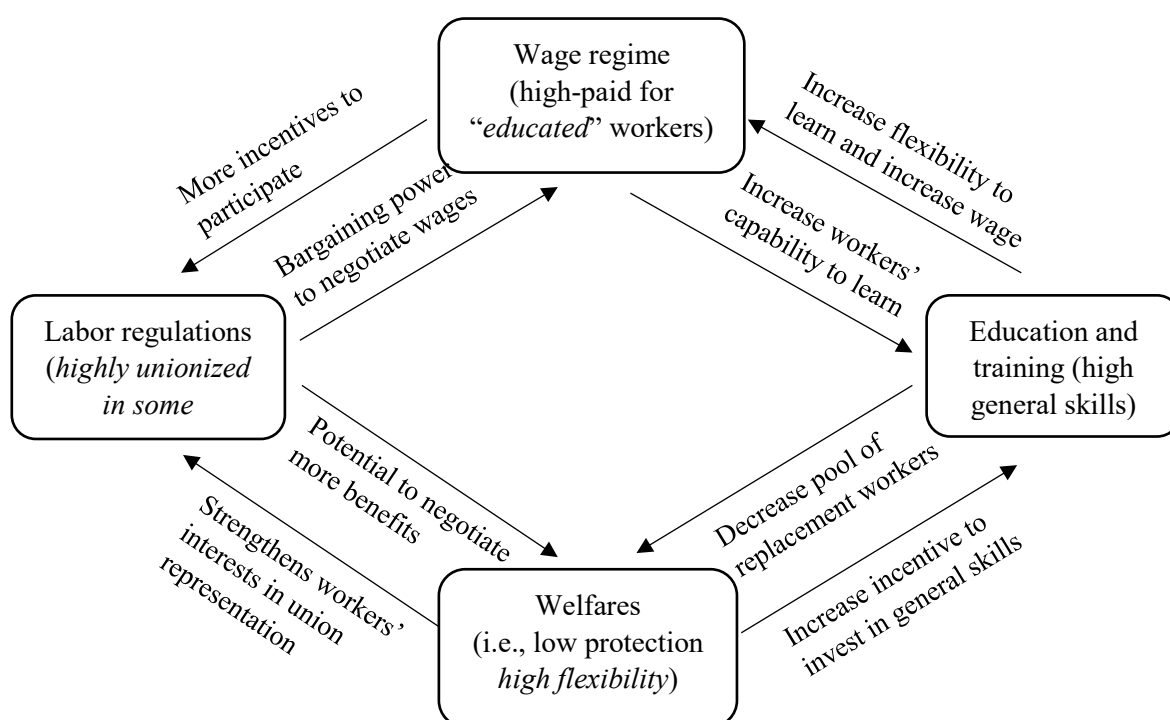
Domain	Low-equilibrium sub-institutions	High-equilibrium sub-institutions	Overall picture
<i>Wage regime</i>	Low wages (510-800 R\$/month) with wage floor; they were accounted about 65 percent of employed persons in 2013.	High wages (more than 900-2,417R\$/month) with profit-related pays; they were accounted about 35 percent of employed persons in 2013.	996R\$/month
<i>Education and training system</i>	Low education (only 4 schooling years in 1993 and up to 8 years in 2009) and low quality (around 350 PISA math scores in 2009)	High education (around 8 schooling years in 1993 and 11 years in 2009) and high quality (nearly 450 PISA math scores in 2009)	Approximately 9 schooling years with 401 overall PISA scores in 2009
<i>Welfare (job security)</i>	Low job security; around 49 percent of non-protected employment had a job tenure of fewer than six months in 2002	High job security (with internal flexibility – the hour bank); 14 percent of protected employment had a job tenure of fewer than six months in 2002	The median tenure was on par with LMEs (i.e., the USA and UK)
<i>Labor regulations (unionization)</i>	Low unionization rates (less than 34 percent of employed persons), for example, clothing (8.8	High unionization rates (from 34.5 to 65 percent), for example, electric and electronics (36.4 percent),	Low unionization rates of around 17–19 percent

Domain	Low-equilibrium sub-institutions	High-equilibrium sub-institutions	Overall picture
	percent), civil construction (8.9 percent), and commerce (13.4 percent)	vehicles and auto parts (45 percent), and oil and refineries (52.2 percent)	

Source: Maia and Sakamoto (2018) for wage data, Bruns et al. (2012) for education data, Marshall (2004) and Schneider (2013) for job security data, and Arbache (2008) for unionization data.

These bifurcated labor institutions thus led to very contrasting but coexisting outcomes. On the one hand, the low-equilibrium sub-institutions created the hierarchical labor market. In other words, the labor market utilized cheap labor to produce cheap or low-value-added products. Under this system, laborers gained very short job tenure, high turnover rates, and rarely got proper training. Because they were always forced to change jobs within a short period, they were discouraged from participating in union activities and also training. This economic system can generate employment (labor absorption) without long-term prosperity and technological progress. On the other hand, Brazil instantaneously advanced the high-equilibrium sub-institutions (**Figure 9.13**).

Figure 9.13: The high-equilibrium sub-institutions within Brazil's economy



(1) **Wage regime vs. education and training system:** Occupations such as managers, professionals, and specialists gained high wages (Maia and Sakamoto, 2018); thus, they could invest in training for themselves and education for their children. So, the level of skills and education of these workers' families improved incrementally over time.³⁵⁸ Also, highly educated people could access the prestigious job markets and assume well-paid positions in large companies.

Briefly, high wages gave the financial resources to invest in education and the effect was intergenerational (Dunn, 2007). Concurrently, high education gave exclusive

³⁵⁸ Brazil was observed as one of the highest intergenerational earning transmissions in the world. One of the most obvious mechanisms was the intergenerational transmission of education investment. For example, "the mean schooling of 17-year-olds of mothers with no schooling in Brazil is 3.8 years, while that of children of mothers with 15 or more years of schooling is 9.4 years, a full 147% higher" (Dunn, 2007: 33).

opportunities in the job market, which generated high wages for educated workers. This is the first set of reinforcing relationships and complementarities.

(2) **Education and training system vs. welfare (job security):** The highly educated workers gained more secure jobs and longer tenure even if the labor market was flexible. To a large extent, this was because their skills and knowledge were specific and could not be replaced easily by low-paid laborers. At the same time, the flexible job market, which gradually evolved after Cardoso's liberalization, demanded more "general skills" so that it was compatible with university-based education³⁵⁹ instead of vocational training.

(3) **Welfare (job security) vs. labor regulations (unionization):** High job security led to higher incentives for workers to participate with trade unions. As such, in high-tech sectors, namely, oil and refineries, electronics, automotive and auto parts, which employed mostly highly educated employees, there were high unionization rates (more than 34.5 percent) (Arbache, 2008). As we can see from the union movements discussed above, these highly unionized workers could protect the welfare benefits of workers in their own industries.

(4) **Labor regulations (unionization) vs. wage regime:** Unionized workers had more bargaining power than individuals, so they could gradually negotiate a wage increase.³⁶⁰ Arbache and Carneiro (1999: 1880) found that the union wage premium was around 6.7–11 percent. Together, the capital- and technology-intensive sectors tended to employ educated workers, who got higher wages than the labor-intensive

³⁵⁹ It is worth noting that, similar to the Korean university-based meritocracy, Brazil's labor market valued university-trained workers highly, because of the historical legacy of the government's investment during the 1970s. Human resources of all strategic sectors such as oil refineries, computers, and aircrafts depended on a shortlist of prestigious university or public research institutions at that time, for example, the *Instituto Tecnológico de Aeronáutica* (ITA).

³⁶⁰ In the case of Brazil, the union centrals usually set the wage floor by negotiating with the state; after that, local unions possibly made a second-ordered negotiation with employers for extra wages such as profit-related payments. Hence, variation among wages in unionized firms within the same industry was high (Arbache, 2008: 148).

sectors, so we can say that the highly unionized sectors correlated with a high education, as well as wage premiums (Arbache, 1999: 433–4).

These “four high” characteristics of Brazil’s sub-institutions were the foundation of the Brazilian high-tech sectors and long-term growth of the nation. As such, “despite Brazil recognizably having abundant labor and natural resources, a significant group of firms, which generates 25% of industrial revenue, is inserted in the international market via medium- and high-tech goods” (Negri and Turchi, 2007: 15). In 2005, 48 percent of Brazil’s manufactured exports came from medium and high-tech (MHT) activities (World Bank, accessed April 27, 2021).

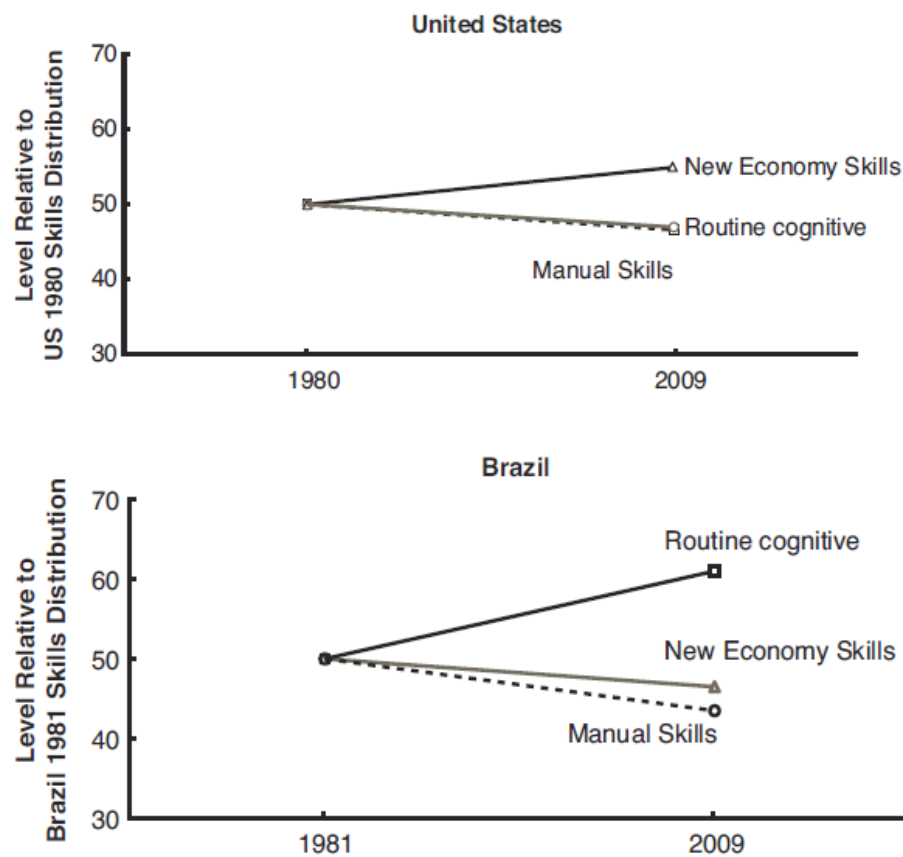
Observers, who did not deliberately separate these high-equilibrium institutions from the “general” picture of the country, missed the chance to understand how Brazil generated brilliant growth rates in the 2000s. I shall exemplify this very important argument using the case of skills evolution in Brazil between 1981 and 2009. Bruns et al. (2012: 30; annex 5) traced the development of skills of the labor force in the USA and Brazil and classified them into three groups: manual skills, routine cognitive skills, and new economy skills.³⁶¹

Overall, as portrayed in **Figure 9.14**, the US economy depended more on new economy skills. However, Brazil’s skills composition depended more on the routine cognitive skills provided mainly by the university. In contrast, new economy and manual skills declined over time. Some might consider that Brazil was not relevant to the modern and high-tech industries that demanded the new economy skills. However, this superficial judgment was wrong. If we consider only the well-paid workers (quintile 4 and 5) in the database, presented in **Figure 9.15**,

³⁶¹ Routine cognitive skills are: (1) repeating the same tasks, (2) accuracy, and (3) the structured or reverse structured workers. Routine manual skills are: (1) pace determined by speed of equipment, controlling machines and processes, and (3) making repetitive motions. Finally, new economy skills are combinations of non-routine analytical, interpersonal, and manual skills. For example, (1) analyzing data, (2) thinking creatively, (3) coaching and guiding subordinates and colleagues, (4) manual dexterity, and (4) spatial orientation (Bruns et al, 2012: 129).

the Brazilian labor force depended more on new economy skills. Indeed, the slope of changes was even sharper than in the United States.

Figure 9.14: Evolution of skills in the labor force in the United States and Brazil, 1981–2009



Source: Bruns et.al. (2012: 30)

Figure 9.15: Skills evolution in the top two quintiles of the Brazilian labor force, 1981–2009



Source: Bruns et.al. (2012: 31)

The characteristics of technological paths had already formed in the 1990s. Because Brazil's labor movements, in both the urban-industrial and rural-agricultural sectors, were extremely militant, the Brazilian firms applied labor-saving technologies as a dominant strategy to avoid economic losses due to labor conflicts. For instance, in 1988 the number of workdays lost to labor conflicts was approximately 63.5 million days (Antunes and Wilson, 1994: 270). According to Devidé Júnior and Carvalho (2016: 8), approximately 25 percent of all labor disputes during 1983–88 had more than a thousand strikers. While the Lula government constructed a strong relationship with most of the union centrals, some, such as *CONLUTUS* (the industrial union) and *MST* (rural workers' movements), maintained their militancy and sometimes even acted against the leftist government.

These labor-saving technologies were applied in both high-tech sectors such as aircrafts, oil and refineries, and automobiles, and agri-industry. It was also relevant to the above high-equilibrium institutions. However, there was a very large low-tech sector, which mostly applied labor-absorption techniques. Therefore, many observers did not realize the technological progress of the Brazilian economy when they monitored only macro-economic indicators and national innovation systems.

Conclusion:

The Force Awakens, Labor Strikes Back, and Catching Up

From Chapter 3 to Chapter 9, we considerably examined details of conventional cases of successful latecomers – South Korea and Taiwan – and a controversial case, namely, Brazil. This chapter will compare and conceptualize the findings into three issues related to economic catch-up: the trap of economic transformation, the rise of developmental labor, and the varieties and dynamics of labor institutions. Moreover, this chapter will discuss and place the findings in a political economic debate.

Main Findings

Very Brief Summary:

- *First, during the early stage of development, the state played imperative roles in economic transformation by creating high-performance labor-intensive industrialization. Labor movements have concurrently emerged. Step-by-step, these movements spontaneously acted against the repressive measures of the state and capitalists in the 1970s so that wages increased radically during the time.*
- *Second, the labor movements and wage surge pulled the trigger for technological upgrading in the 1980s–90s. Three channels are highlighted:*

capitalists employed more labor-saving and labor-complementing technologies to maintain a profitable share of the capitalist class; workers have more income to invest in education and skills; and the capable state helps these two economic agents to adjust themselves in order to maintain their political supports.

- *Third, labor movements are different in these case studies; therefore, the strategic responses of a capitalist–state alliance are different. These varieties of developmental labor and reactions of the alliance led to different trajectories of labor institutions (as a part of capitalism) after the 1990s.*

The Wage Surge and Economic Transformation

We learned that industrial upgrading is not only moving along the path but also transforming the economic structure. The transformation happens only if there is a trigger that stimulates the state and businesses simultaneously to adjust themselves toward investment in higher technological levels and overcoming several structural barriers. This process could not be easily accomplished by either businesses or the state because of opposing forces from both political and economic losers. According to our three case studies, coordination failures usually happened and the trap appeared.

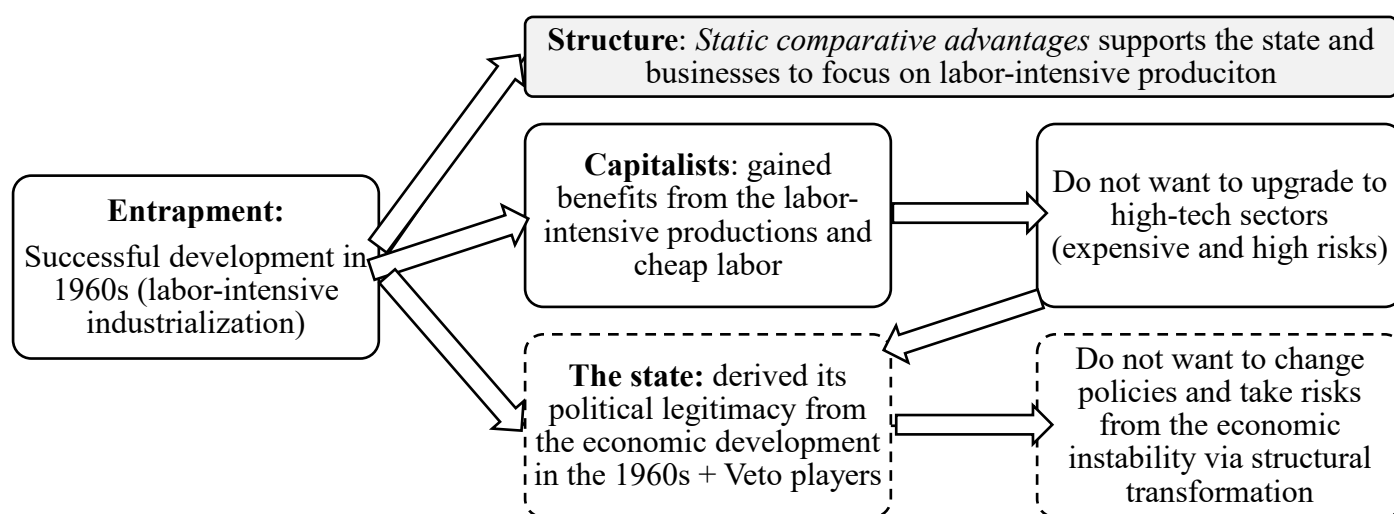
The Trap

Broadly speaking, developing nations encountered entrapment when they upgraded their national incomes and industrial technologies to the middle level. This happens for various reasons, which are presented in **Figure C.1**. First, at the structural level, the static comparative advantage provided a safe zone for investment concentrated on mature labor-intensive products. This factor included the structurally inferior conditions of developing countries such as a low-quality education and a limited pool of skilled workers.

Second, capitalists who operated in the existing economic structure optimized their production to labor-intensive production to maintain their competitive advantage. These capitalists had incentives to block economic advancement and new technologies to retain their profits and power. Together, while they knew that investment in higher technology could generate long-term gains, it could abruptly increase the short-term costs, increase risks, and reduce short-term competitiveness (Chang et.al., 2002). When the nations reached the middle-income level, capitalists accumulated higher wealth and de facto power, so they could play the role of a veto player and oppose any policies deviating from their static advantages centered on middle-technology productions.

Third, the state derived its stability from economic performance, so it did not want to take political risks by deviating from the existing structure and engaging in self-discovery processes, which generated some failed investments (Rodrik, 2004). Also, the state and political elites did not want to take risk from allowing new interest groups to emerge outside their political networks (Acemoglu and Robinson, 2000).

Figure C. 1: Structural entrapment in economic catching up



From the late 1960s to the early 1970s, our case studies faced a similar struggle. For example, in the second half of the 1960s, Park Chung-Hee revealed his intention to invest in the heavy and chemical industries (HCIs), namely, steel, shipbuilding, and chemicals. However, his technocrats and foreign experts disagreed and occasionally opposed the plan (Clifford, 1990: 59; Billington, 2013: 36). The HCI projects were notably delayed until the mid-1970s. Also, reorganization of the administrative structure to enhance science and technology took place after 1980, when the government consolidated all government-funded research institutes under the Ministry of Science and Technology (Hahm and Plein, 1995).

Unlike South Korea, Taiwan had already been investing in HCIs since the late 1960s, as part of the import-substitution and security policies. The conflict, however, happened in the 1970s between two contesting ideas led by Chiang Ching-Kuo and K.T. Li. The former wanted to stay longer and use more resources for HCIs, while the latter wanted to quickly shift to more technology-intensive sectors. The Ten Major Construction Project (1974–9) reflected the fact

that the government emphasized HCIs and delayed technology-intensive projects to the next decade (Hsueh et al., 2001: 57–8).³⁶²

Brazil was industrialized before South Korea and Taiwan. Significant progress took place in the 1930s after Getulio Vargas assumed power. The industrial share increased from 19.4 percent in 1939 to 30.1 percent in 1959 (Evans, 1979: 71). During three decades, Brazilian capitalists and state policies focused heavily on labor-intensive industries, especially textiles and apparel, wood products and furniture, food and beverages, and metal fabrication. However, the industries that depended more on capital and economy of scale belonged to foreign companies (p. 117–18). High-tech industries such as aircraft, automobiles, and informatics emerged and flourished only after the early 1970s.

The Trigger

Existing literature on the exit strategy escaping from the middle-income trap suggested three main routes, as surveyed by Veerayooth (2014).

The first route changed the composition of exports toward a higher level of technological sophistication and created dynamic comparative advantage.³⁶³ The second involved getting education right, meaning that the state should invest more in education and increase the human capital of the nation. Finally, the third route involved getting institutions

³⁶² In 1976, Chiang moved Li out of the Ministry of Finance and appointed him Chairman of the Coordinating Committee for the Application of Science and Technology to National Objective. On the one hand, this appointment responded to Li's intention for technological upgrading. On the other hand, it reflected that Chiang wanted to curtail Li's power because the new position had much less "real" power in policy execution.

³⁶³ However, there were unsettled debates about how far they should go beyond their current "comparative advantages." Scholars such as Chang Ha-Joon supported the radical paths, that is, the nation could jump forward to very high-technology sectors, although Justin Lin supported less radical paths of development by showing that developing nations should gradually increase the technological capability (see series of debates in Lin and Chang, 2009; Lin et al., 2011; and Chang and Andreoni, 2019).

right. This was very broad advice because growth-enhancing institutions covered very long lists such as political regime, property right, level and type of price distortion, and so on.

These conventional suggestions were not wrong, but they were too general and indistinct. Together, they still could not explain how the reluctant economic agents (the state and capitalists, who gained benefits from the less technology-intensive industries) agreed to adjust themselves to make the three core policies right. The trigger of adjustment hid itself within the transition period (roughly the 1970s) of our case studies. This thesis found that *the mechanism*, which shaped and induced the capable state, businesses, and workers concurrently adapting themselves, *was the wage surge and its persistence* presented in **Figure C.2** (below).

In South Korea real wage growth during 1956–65 was low because the government repressed the labor organizations and wages to promote political stability and the cost competitiveness of the export industries. However, the situation changed in the late 1960s, when workers began to demand higher wages. Afterwards, real wage growth increased to 10.80 percent per year during 1966–70. It reached the highest rate during 1976–80, at 13.48 percent per year. Over the five decades of the catch-up period (1956–2005), average real growth was vast, at 6.21 percent per year.

Unlike South Korea, Taiwanese workers gradually organized themselves within the state structure in the early phase of development. They used the “petty-bargaining approach” to get what they wanted (Ho, 2012). The state too closely mediated this process. Therefore, the real wage growth of Taiwanese workers increased from approximately -0.57 percent per year in the 1960s to around 6.27 and 7 percent in the 1970s and 1980s, respectively. This quickly pulled wages up to the level that “industrial development in Western Europe and North America had taken seven or eight decades to accomplish” (Hsueh et al., 2001: 52).

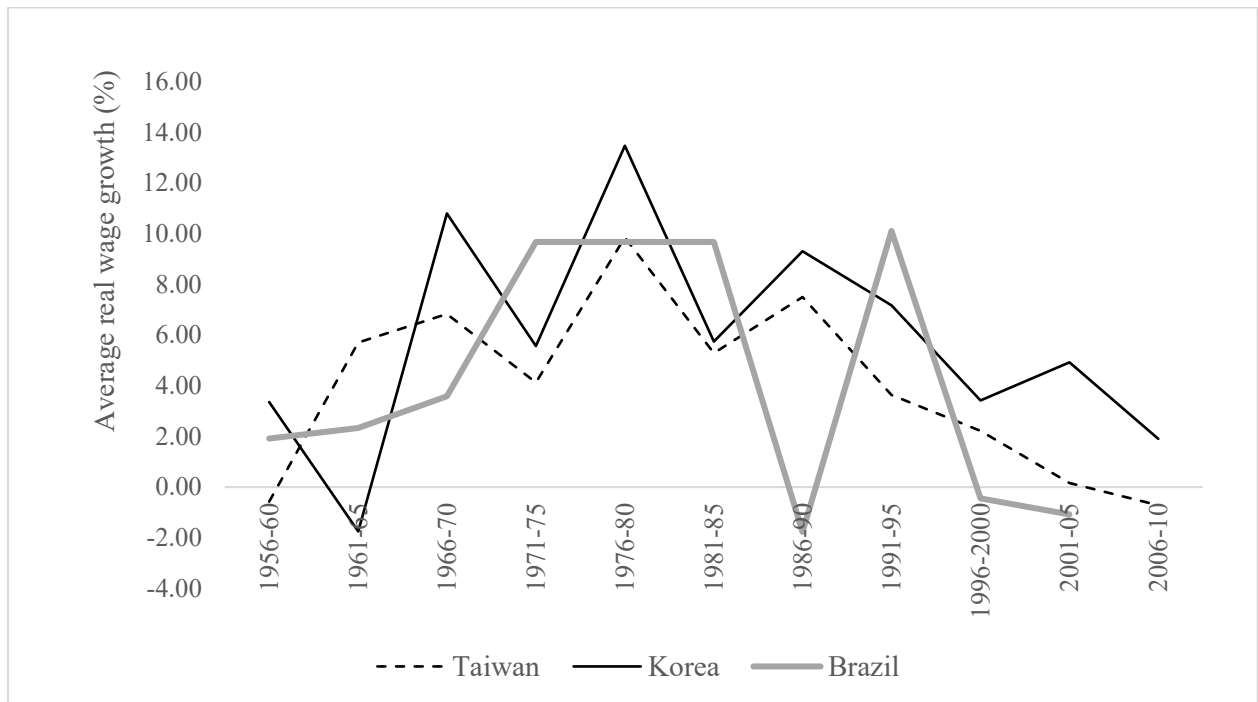
In Brazil there were three waves of wage improvement. The first wave appeared after Getulio Vargas took control of the government, especially after 1945, when Vargas extended political rights to industrial and urban workers (French, 1989: 8). He also guaranteed minimum wages for low-paid workers (Gozetto and Thomas, 2014: 220). As illustrated in **Figure C.2**, from 1946 to 1964, the real wages of the manufacturing sectors improved by approximately 4 percent per year. If we calculated only the period of the Vargas government (the second term: 1951–4), real wage growth increased to 5 percent per year.

The second wave happened after the army seized power and established a two-decade-long military government. The average wage in rural areas of Sao Paulo increased from 3.41 Cr\$ in 1960 to 154.05 Cr\$ in 1970 and 475.5 Cr\$ in 1974. Within just 15 years, the nominal wages of rural workers improved by roughly 13,800 percent (Macedo, 1977: 121). This too created momentum for labor movements and wage demand in urban areas. While the government twisted the policy and tried to repress wages in the 1970s, it was not successful. Between 1970 and 1984, real wages increased by roughly 9.68 percent per year before collapsing during the economic crisis in the late 1980s (Braumann, 2004: 124).³⁶⁴

The third wave occurred after the hyperinflation crisis ended in the late 1990s. While a general assessment of labor movements (i.e., the number of strikes) shows a declining trend, the strategic labor organizations effectively mobilized their masses to bargain with the state and capitalists. In particular, the CUT cooperated with political parties to increase wages and improve welfare schemes in the 2000s. This was obvious when the leftist leader, Lula da Silva, assumed office. He turned real wage growth from -2.28 percent per year (during 1998-2002) to 4.4 percent per year in 2006 (Barbosa-Filho, 2008).

³⁶⁴ However, wage control was quite successful in some sectors, such as construction. Its real wage index increased from 100 to 134 in 1979. After that, it rapidly declined in the 1980s (Amsden, 1989).

Figure C. 2: Average real wage growth in South Korea, Taiwan, and Brazil, 1956–2010



Source: Calculated by author based on various sources³⁶⁵

These phenomena of rapid and continued wage increase in South Korea, Taiwan, and Brazil triggered economic agents to simultaneously upgrade themselves toward higher incomes and higher technology levels.³⁶⁶ Details of these mechanisms are provided in the following section.

³⁶⁵ Wage data of South Korea from Amsden (1989), Yoon (1999), Kim and Kim (2003), MOEL Survey; the inflation rates of South Korea from www.inflation.eu and the World Bank (accessed April 16, 2021); wage data of Taiwan from Jenkins and Kuo (1997) and the National Statistics, Republic of China (Taiwan) (accessed April 16, 2021); the inflations rates of Taiwan from the National Statistics, Republic of China (Taiwan) (accessed April 16, 2021); real wage data of Brazil from Colistete (2007), Macedo (1977), Baumann (2004), Menezes-Filho et.al. (2002), and Barbosa-Filho (2008).

³⁶⁶ This phenomenon also happened in Singapore. Singapore created the National Wage Council (NWC) in 1972 with the aim of stabilizing wages. However, in the late 1970s the purpose of the NWC was altered. To respond to the higher pressure from low-wage economies (i.e., Thailand and Malaysia), the government directed “the NMC as a means of raising wage rates well ahead of productivity so as to force firms to upgrade and to move ‘upmarket’” (Rigg, 1988: 343). This effort was coupled with the establishment of a Skills Development Fund and a Vocational and Industrial Training Board. The policies led to what Jonathan Rigg called “the second industrial revolution” of Singapore.

Transformative Mechanisms

The rapid and continued growth of wages transformed the economic structure through at least three channels in the 1980s.

First, it changed relative factor prices, which, in turn, transformed the comparative advantage of export products toward high capital and technological intensity.

How does this mechanism happen? Kim Linsu explained that discontinuous learning and technological advancement generally take place when a firm perceives a crisis (Kim, 1998). Moreover, “a crisis may be generated naturally when the firm loses its competitive standing in the market” (Kim, 1999: 118). Accordingly, the persistence of wage increases (eroding cost competitiveness) triggers capitalists to invest more capital and adjust production.

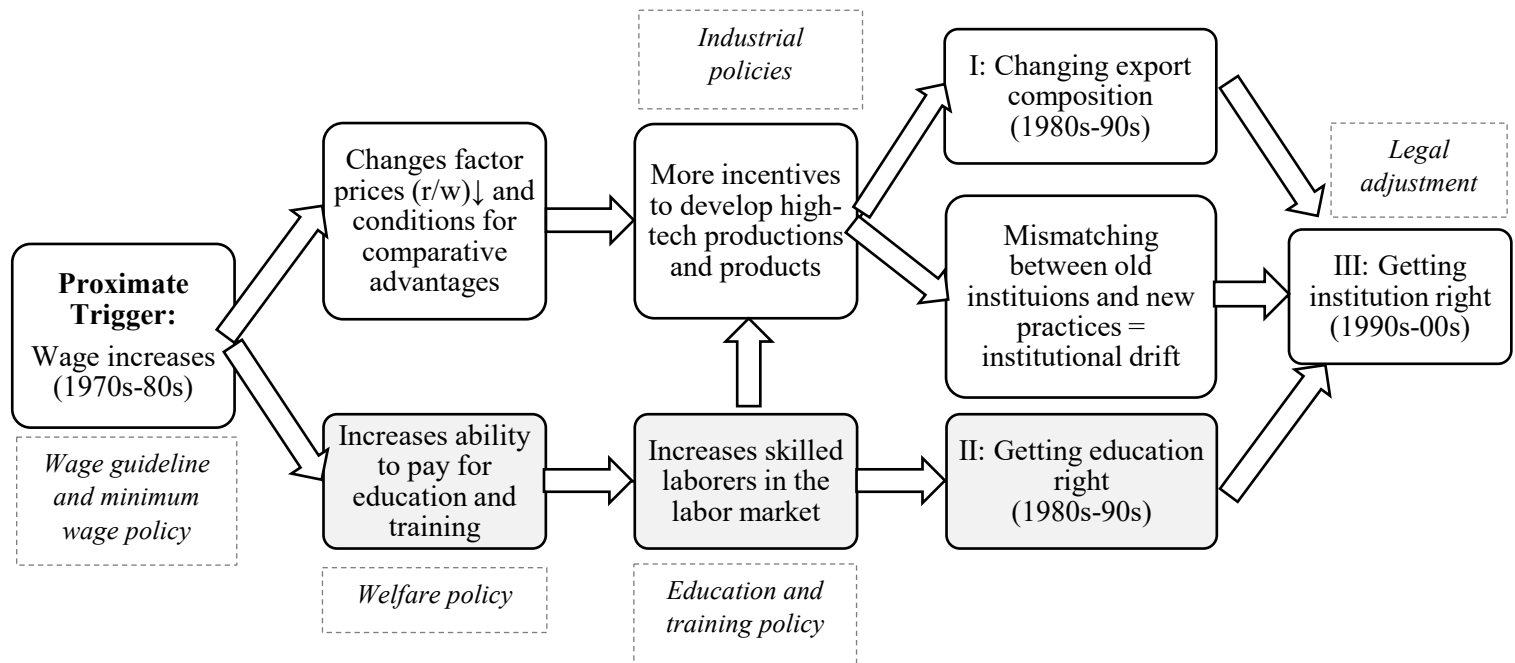
Altogether, this argument is in line with Allen (2011), who said, “The technology invented today, with its very high capital-labor ratio, is only cost effective when the wage is high relative to the price of capital” (p. 9). We can see from Chapters 3 to 8 that the state, businesses, and workers in our case studies actively engaged in technological development (see the white boxes in **Figure C.3**).

Second, increasing wages also improved the well-being of workers and provided more financial space for them to invest in education and training, for both themselves and their children. In addition to the supply-side investment (i.e., the number of schools), increasing wages enlarged the demand for education and training. Hence, indicators of human capital such as schooling years and productivity improved (see the gray boxes in **Figure C.3**).

Finally, because the state derived its popular supports from both economic performance and the well-being of the people, the dynamics of factor prices (higher labor costs), which

decreased the profitability of the current production structure, alerted the state to facilitate production transformation. The highly capable state was then incentivized to impose structural adjustment by providing wide-ranging policies such as wage guidelines and minimum wages, welfare schemes, education and training, and industrial policies (see dashed boxes in **Figure C.3**).

Figure C.3: Transformative mechanisms from wage increases to economic catching up³⁶⁷



In the 1980s, when these three lines of modification converged, they transformed the economy, similar to the policy package mentioned above (see Veerayooth, 2014): (I) changing export composition; and (II) getting education right. In the long term, from the 1990s to 2000s, when these emerging practices for higher technologies were unmatched with various prior institutions (especially outdated laws and regulations), all of the economic agents gradually

³⁶⁷ The upper route represented by the white boxes are responsive reactions from the capitalists. The lower route represented by the grey boxes are responsive reactions of laborers. The separated dash boxes are responsive reactions of the state.

bargained with one another and revised the existing institutions (the so-called getting institutions right).

At this point, we reach an important conclusion: increasing wages pulled the trigger that changed the behaviors of businesses, workers, and the state toward technological upgrading. It is worth noting that the state needs to have sufficient “transformative capacity”³⁶⁸ to respond to wage pressure and facilitate transformation. This finding is relevant to numerous pieces of literature that acknowledge that increased wages create “pressure” for structural change (i.e., Cherif and Hasanov, 2019: 21; Tsunekawa and Todo, 2019: 6; and Suehiro, 2019: 30; Kim, 1999: 126).³⁶⁹

The more important question is: *What are the permissive conditions and mechanisms that allowed wages to increase in the first place?* This will be elaborated in the next section.

The Rise of Developmental Labor

Economists generally believed that wage is an economic factor determined by variables such as demand, supply, job qualifications, and workers’ characteristics. This may be partly true but incomplete. Wages are political in nature. For example, under a repressive political regime, workers could not freely organize and effectively bargain with capitalists, so wages are suppressed. This section will demonstrate how the phenomenon of rapid and continued growth of wages closely related to the movements of developmental labor.

³⁶⁸ About the transformative capacity of the state see Weiss (1998).

³⁶⁹ However, if the trigger – the rapid and continued increase of wages – happened in a state that has low transformative capacity, it cannot withstand the pressure. For example, a weak state cannot effectively support its private businesses to upgrade their technologies and, instantaneously, those businesses lose price competitiveness in the international market. This leads to a decline in economic growth in the long term. This means that the wage increase and the state’s transformative capacity are perfect complements for economic progress.

Labor Shortage and Wage Policies

There are three alternative explanations for the wage surge: labor shortages, public policies, and labor movements, as presented in **Table C.1**. The only two conventional explanations – labor shortages and public policies – cannot fully explain successful economic catch up in our case studies, but the labor movements can.

Table C.1: Permissive conditions and the mechanisms of economic transformation

		South Korea	Taiwan	Brazil
Permissive conditions	Labor shortage	No	Yes	No
	Wage policies	Weak	Strong	Segmented
mechanism 1	Labor movements (Yes/No)	Yes	Yes	Yes
	Labor movements (frequency and militancy)	Low frequency and high militancy	High frequency and low militancy	Very high militancy in strategic sectors
mechanism 2	Real wage growth 1970-1985	High	High ($<$ South Korea)	High

The first candidate is labor shortages. The seminal work in this thread comes from Gary Fields, who explained rapid wage increases in Taiwan by employing the unlimited labor-supply argument of Arthur Lewis.³⁷⁰ Generally, a formal sector pays the wages of workers at a higher rate than an informal sector; therefore, workers would want to get jobs in the formal parts of

³⁷⁰ Fields (2004) applied Lewis's model using the terms formal and informal sectors instead of capitalist and subsistence sectors (see Lewis, 1954). However, it is fundamentally the same thing.

the economy. An effectively unlimited supply of labor occurs (Fields, 2004: 727) and “over time, throughout a long range, the wage in the formal sector remains unchanged, because employers do not need to raise the wage to attract more labor” (p. 728). In this matter, wages increase only when a reserve of labor in the informal sector dries up.

This process is accelerated when rapid economic growth increases the demand for workers. “Once full employment is attained, the competition among employers for scarce labor bids up wages and induces a shift away from unskilled labor-intensive products” (Fields and Wan, 1989: 1471). In Taiwan, Fields argued, unemployment rates continually decreased, from 6.3 percent in 1955 to just 1.5 percent in 1972. In other words, almost all labor forces that wanted to work got jobs; so a full employment condition existed. Thus, the Taiwanese real-wage index skyrocketed by around 217 percent between 1970 and 1980 (Fields, 2004: 731).

Indeed, Fields’s argument is specific to Taiwan, but it is not a general explanation and does not well explain the South Korean and Brazilian cases.

Amsden (1989: 191) investigated the Lewisian hypothesis in South Korea and found that it did not provide a legitimate answer to high growth wages. She said, “Given Korea’s traditional high population density and inequitable income distribution, a scarcity of labor never existed.” The labor shortage occurred only in a very brief period of the late seventies when there was a huge outflow of laborers, approximately 27 percent of total male manufacturing workers. However, “such scarcity proved short-lived, with [the] collapse of the Middle East construction market and a slowdown in Korea’s growth rate. Thus, in the 20 years spanning 1965 to 1984, a tight labour market was the exception to the rule, yet real wages rose persistently” (Amsden, 1990: 83).

Brazil also did not have a labor shortage in the 1970s. The population size grew consistently from 72 million in 1960 to 95 million in 1970 and 146.6 million in 1990. This

shows that the population growth rate did not slow down considerably. Anaya (1999: 38) estimated that Brazil's unemployment rate was more than 6 percent between 1978 and 1982.³⁷¹ This was far from Taiwan's 1.7 percent unemployment rate in 1972. We did not need to talk about the huge labor reserve in the informal sector that prompted moving to the formal manufacturing sector and economic slowdown in the 1980s; therefore, we cannot say that Brazil faced a labor shortage.

If a labor shortage is not the only culprit in the wage surge in all case studies, what is an alternative explanation? Another explanation is the wage policy, broadly speaking, under state corporatism.³⁷²

In order to maintain political stability, the states in our case studies imposed welfare and wage policies for workers. For instance, from the 1960s, South Korea enacted the Workmen's Compensation Insurance (1963) and the Medical Insurance Act (1963). These forms of legal support for labor were expanded in the 1970s. In Taiwan, the KMT even penetrated into firm-level labor organizations (via the management-labor council) and quickly provided welfare benefits to workers. In Brazil the federal government gradually expanded its patronizing projects from urban-industrial workers in the 1960s to rural-agricultural workers in the 1970s.

It seems that state corporatism explains the higher welfare benefits in our case studies; however, it still does not completely fit the phenomenon when we consider the way that these states handled wages. In South Korea the state avoided direct involvement with wage issues in

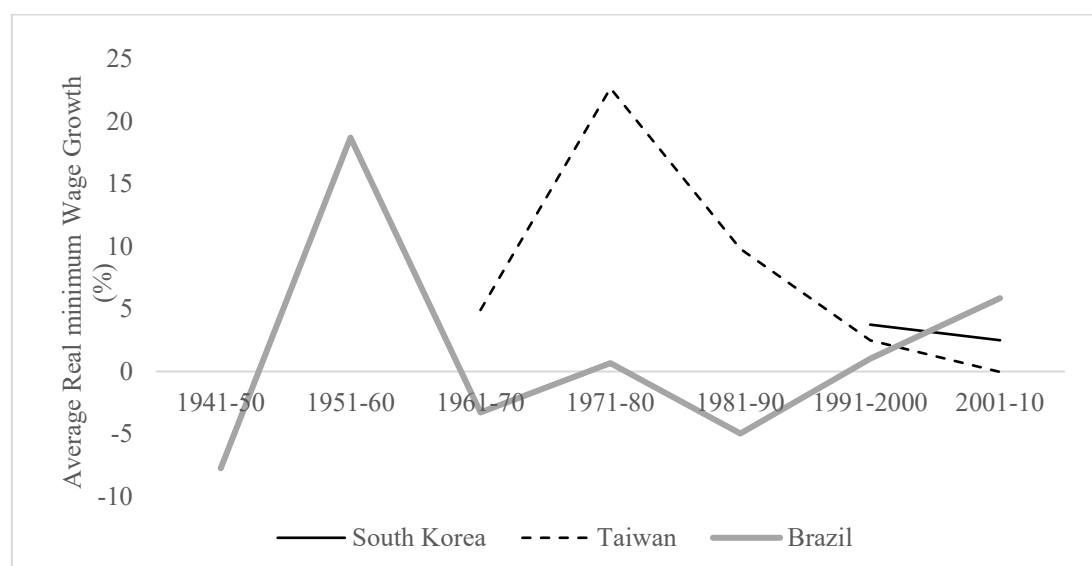
³⁷¹ While the data for the unemployment rate in Brazil before the 1980s was inconclusive, it ranged from 4 percent to more than 6 percent. According to low schooling years, high informal sector, and weak child labor protection in the late 1970s and early 1980s, we might use a working age population (≥ 10 -year-old) as a labor force number. This was approximately 89 million persons in 1980 (World Bank, 1993b: 6), which means that there were around 5.34 million unemployed persons.

³⁷² "According to Philip Schmitter, state corporatism is a system of non-competitive, compulsory, hierarchical and limited-interest representation that helps the ruling elite to 'repress and exclude the autonomous articulation of subordinate class demands'" (Ho, 2006: 107). Under this system, the political elites paid special interest to the aristocratic groups of the subordinate class, as well as wage and welfare schemes in exchange for political stability.

the 1970s. The minimum wage act existed only after 1986, and the state jumped to mediate the nominal wage guideline in the 1990s (Suh, 2009). In contrast, Taiwan imposed the official minimum wage in 1956. Brazil had a minimum wage from 1943 as part of the famous Consolidated Labor Laws (CLT) (Silva and Corrêa, 2016: 13). However, in practice, it covered only urban–industrial workers and not rural workers.

In brief, the degree of wage determination via state corporatism was high in Taiwan, low in South Korea, and segmented in Brazil. This is reflected in **Figure C.4**. Taiwan’s minimum wage growth remained at more than 4 percent per year during three decades (1961–90). In Korea the minimum wage was recognized very late, and its growth rates were lower than 4 percent. Finally, after the golden period of minimum wage growth (1951–60), Brazil’s minimum wage was used as an economic stabilizer instead of a welfare measure. Therefore, minimum wage growth oscillated between minus and roughly zero before the 2000s.³⁷³

Figure C.4: Average real minimum wage growth in South Korea, Taiwan, and Brazil, 1941-2010



Source: Calculated by author based on various sources³⁷⁴

³⁷³ This means that the government aims to increase the minimum wage only to compensate for inflationary rates. This pattern was twisted when the leftist leader – Lula da Silva – assumed office in the 2000s.

³⁷⁴ Nominal minimum wage data of South Korea from the Minimum Wage Commission (accessed April 16, 2021); inflation rate data of South Korea from the World Bank (accessed April 16, 2021); nominal minimum wage

This means the corporatism argument cannot fully explain why South Korea's wage growth was the highest of the three cases, although it did not have a labor shortage and low state intervention in wage issues in the 1970s. Instead of a labor shortage and wage policies, this thesis argues that the common mechanism that pulled wages up in our case studies was developmental labor movements.

Developmental Labor Movements

In South Korea industrial workers initiated meaningful movements the late-1960s; for example, in the shipbuilding sector, the labor union in a company named the South Korean Shipbuilding and Engineering Corporation (KSEC)³⁷⁵ demanded a "living wage" (Nam, 2009). Moreover, in 1970 a young leading worker named Jeon Tae-il committed self-immolation to protest against the low pay and cruel working conditions of the textile industry. These incidents, together with a higher inflation rate, ignited other spontaneous protests in industrial areas (p. 188). From 1965 to 1971, these movements partly, if not entirely, contributed to pulling industrial wages up by 200 percent (Amsden, 1989: 207).

In the second half of the 1970s, the frequency of labor disputes was not high but they focused relentlessly on wage issues in the strategic sectors, so that nominal wages grew consistently by more than 20 percent per year (Yoon, 1999: 28). After President Park died in 1979, the Chun government annually sacked and arrested workers around 7.6 times more than

data of Taiwan from the Ministry of Labor (MOL); inflation rate data of Taiwan from the National Statistics, Republic of China (Taiwan) (accessed April 16, 2021); and real minimum wage data of Brazil from IPEA (accessed April 16, 2021).

³⁷⁵ Labor in KSEC gained leveraged power from: (1) the nature of the sector, which depended heavily on skilled workers; and (2) it being an export-led sector, which means it was linked directly to the government's legitimacy derived from economic performance.

the Park government (Liu, 2015: 119). However, instead of declining, labor movements expanded against the repressive measures. Between 1978–81 and 1986–9, the number of strikes increased from 599 to 7,514. Besides, the number of strikers increased by more than 1,000 percent from 108,412 to 1,684,534 (p. 110).

In Taiwan, Taiwanese workers leveraged structural factors (i.e., labor shortage and the corporatism system) to bargain with the state. Between 1970 and 1980, for instance, labor disputes increased from 54 to 626 cases; and the number of workers involved increased from 823 to 6,305 (Chiu, 2002: 488). In 1977 workers successfully formed the first autonomous union in the Far East Textile Company (Minns and Tierney, 2003: 113). Together with the rise of labor unrest, between 1973 and 1980, the monthly earnings of Taiwanese workers increased from 2,254 NT\$ to 8,205 NT\$. This accounted for around 264 percent in less than a decade (National Statistics of Taiwan, accessed on March 14, 2019).

In Brazil industrial workers organized very well from the mid-1940s. The victory of labor-linked parties in the 1945 election leveraged the confidence of organized labor and led to a general strike in 1946, demanding more wages. Approximately 100,000 workers participated in the event (French, 1989: 20). In 1953, 300,000 workers collectively demanded that employers improve nominal wages by around 60 percent. While it finally settled at around 32 percent, the proposal reflected the power of organized labor. These strong labor movements in the mid-1940s and 1950s led to the long-term growth of wages (Colistete, 2007: 110; Wallenstein, 1980: 19).

In 1964 the Brazilian army staged a coup. To consolidate power, the military government echoed what Vargas did before, namely, broadening allies and allowing rural workers to found a rural union. Therefore, the number of rural unions increased substantially, from 14 in 1960 to 1,066 in 1970, and 2,254 in 1980. From 1980, those unions covered roughly

6.9 million members, accounting for 54 percent of the demographic census (Houtzager, 2001: 21). From 1960 many rural unions cooperated with revolutionary churches in the call for social reform, which explained why rural workers' wages increased markedly from 1960 to 1974 (Macedo, 1977: 121).

Returning to the industrial sector, organized industrial workers initially regained their strength in the early 1970s in the steel and automotive industries (Almeida and Lowy, 1976: 117). They also increased their organizing capacity in the 1980s. The number of strikes by industrial workers in urban areas, for instance, increased rapidly from 43 incidents in 1980 to 534 incidents in 1986 (Antunes and Wilson, 1994). Interestingly, during the same period, other groups of workers such as mid-range salaried workers and service workers also organized and participated in strikes. The participation rate increased obviously after the early 1980s (p. 26).³⁷⁶

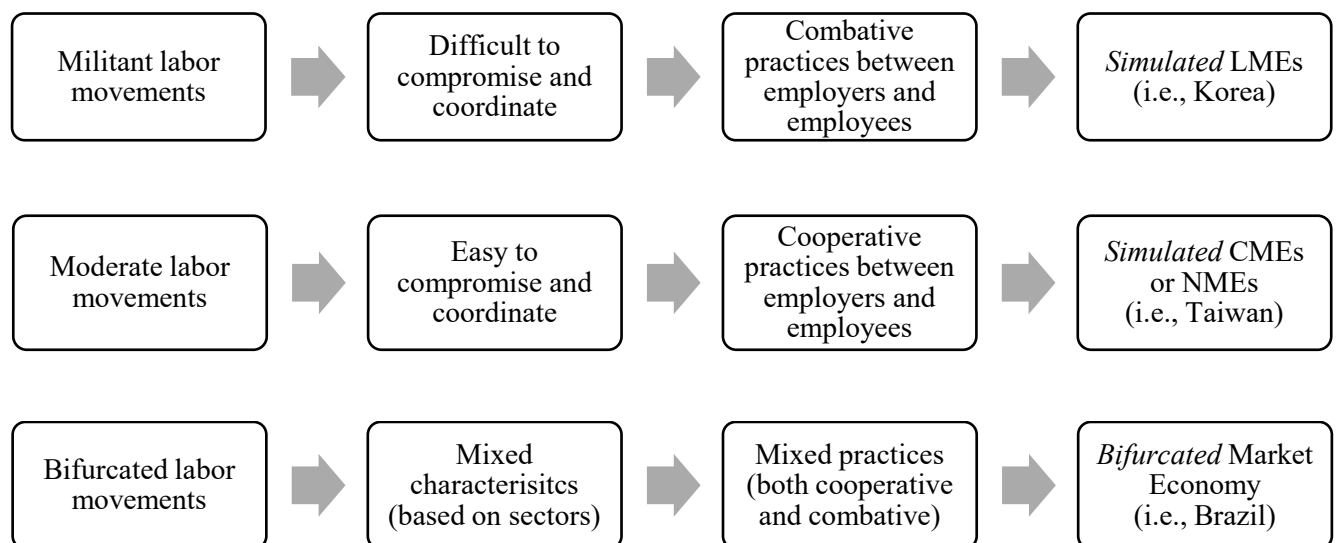
In conclusion, the common mechanism that pulled wages up in the 1970s–80s and stimulated economic upgrading in South Korea, Taiwan, and Brazil was developmental labor movements. This finding is counterintuitive to mainstream economists, who usually insist that labor movements discourage the efficiency of the labor market and escalate the unemployment rate. However, our empirical studies have demonstrated how these arguments are short-sighted. In the medium term, labor movements also encouraged a wage surge that steered the capable state, businesses, and workers toward economic transformation.

³⁷⁶ In the 1970s, although Brazilian workers still mobilized, real wages did not grow as fast as in South Korea and Taiwan. To some extent, this was because of the double-digit inflation rates.

Transformational Mechanism: Varieties of Developmental Labor (VOL) and Trajectories of Labor Institutions

Despite sharing a common character of developmental labor, the varieties lie within. Workers in South Korea do not have many structural factors to leverage. Labor was abundant and the state left labor and capitalists to deal with wage issues themselves. As such, spontaneous labor movements increased in militancy and forced firms to increase wages. In contrast, the Taiwanese had labor shortages and close-linked platforms between factory-level labor organizations and the KMT. Hence, workers used “petty bargaining” strategies to deal with wage and welfare issues. This led to a more gradual pace of wage surges. In Brazil labor movements appeared decades before South Korea and Taiwan, but they concentrated on very short lists of big cities and sectors so the movements were segmented. In responding to these movements, economic agents took different paths and created different trajectories of institutional evolution, as illustrated in **Figure C.5**.

Figure C.5: Varieties of Institutional Evolvments



Varieties of Developmental Labor

In South Korea, labor movements³⁷⁷ employed militant strategies when bargaining for higher wages. Thus, from the capitalists' perspective, they were reluctant to compromise. Businesses then applied labor-saving technologies and utilized capital-intensive methods to overcome combative relationships between them and workers. As a result, labor-related institutions in South Korea evolved into a "liberal market economy." The core characteristics of South Korea's labor institutions are: (1) high-paid performance-based wage regime, (2) university-based meritocracy, (3) numerical job flexibility and high turnover rate, and (4) recognized union pluralism.³⁷⁸

In Taiwan, labor movements utilized a moderate approach to wage bargaining. As such, businesses decided to compromise with them and use labor-complementary technology. Job tenure and continuity of employment were highlighted. These outcomes led to a high level of cooperation between employers and employees so that informally coordinated institutions were developed. This path was defined as the network market economy (NME). The core characteristics of Taiwan's labor institutions are: (1) high payment for tacit knowledge, experience, and collaboration, (2) underlined vocational training, (3) high job security (high functional internal flexibility) and low turnover rate, and (4) recognized union pluralism.

In Brazil, there were mixed characteristics of labor movements and business responses. Both labor movements and economic development were concentrated in big cities.³⁷⁹ They used a radical approach to bargaining, which induced businesses to apply labor-saving

³⁷⁷ "The actions that led the Korean state down a neoliberal path of reform," Weiss said, "were [in] response primarily to domestic-political pressures" (Weiss, 2000: 34). However, unlike Weiss's thesis, which highlighted the changing of the ideological stance of technocrats (p. 35) and state-business relations (p. 36), this thesis emphasizes the roles of organized labor vis-à-vis the state-business alliance.

³⁷⁸ The recognized union pluralism means that the state allows workers to establish national union organizations beyond the centralized and state-sponsored type.

³⁷⁹ For example, 43 percent of strikes took place in Sao Paulo between 1983 and 1991. Approximately 54 percent of the movements had more than three hundred participants (Devidé Júnior and Carvalho, 2016).

technologies. However, in many areas where labor could not easily organize or impose strikes, for instance, in the informal sector where workers got a temporary contract or no contract at all, these informally employed persons had little leverage, prompting the capitalists to employ labor-absorption techniques.³⁸⁰

These bifurcated characteristics of labor movements and capitalists' responses led to bifurcated institutional evolution. In less developed states and relatively low-tech sectors, they continued to practice under the old rule of the game, that is, the hierarchical market economy (HME). They exploited low-paid workers for profit so they employed labor-absorption technology. Under this structure, skills were a luxury, with only a handful workers needed in each production line. Most workers could be disposed of simply, and turnover rate was high. This kind of sector was large enough to pull the average indicators down significantly.³⁸¹

However, there were also hi-tech sectors that developed dynamically. In these sectors, wages were high because of the skills premium as well as the bargaining power of the workers. Similar to South Korea, employers emphasized the importance of educational degrees and imposed performance-based payment (so-called efficiency wages) for productivity enhancing. Because cumulative skills were important for the hi-tech sectors, the turnover rate was lower than the low-tech sectors. Still, the government provided a legal basis for "internal flexibility" via the hour bank system. In brief, the HME and LME coexisted in Brazil, the so-called "bifurcated market economy" (BME).

³⁸⁰ In some cases, capitalists reluctantly upgraded technologies to avoid economic volatility and increase the efficiency of the businesses. In this case, they switched to using labor-complementary technologies, but this was not the main route of the Brazilian capitalists.

³⁸¹ Full details see chapter 4, 6, and 9

Institutional complementarities and institutional advantages

These evolving institutions were complemented one another in a reinforcing manner.

In South Korea, the performance-based wage system (Chang, 2009) discouraged workers from participating in unions (Koo, 2000), but encouraged them to invest in generic skills and education. South Korea also developed liberal welfare schemes, which were based heavily on individual contributions within a flexible labor market. Therefore, job tenure was low (OECD, 2018) and discouraged people to invest in specific skills. Hence, workers focused on learning general skills (Lauder et.al., 2008) in prestigious universities (Cho and Yoon, 2012). These linkages fabricated and supported each other so that South Korea's institutions have been durable. The durable sets of liberal institutions then created specific institutional advantages for South Korea. For example, highly educated South Korean workers were competitive, while flexibility of South Korea's labor market was high. These, in turn, strengthened large firms' strategies such as the Reverse PLC and investment in breakthrough technologies.

In contrast, Taiwan was the NMEs because the state, businesses, and laborers collaborated with one another through networks. This relationship was strengthened by the reinforcement of operating labor institutions. For example, Taiwan had generous welfare programs and a highly protected labor market. As such, laborers' job tenure was so high that stimulated workers to develop firm-specific skills (Walter and Zhang, 2012) and innovative methods to handle multi-tasking jobs (functional flexibility) (Wang, 2001). Regarding the education system, the state and laborers focused their attention on vocational education (Green et.al, 1999; Cheng, 1992-3). These characteristics of jobs and training supported incremental (instead of breakthrough) innovations at shop-floor level (instead of laboratory). Thus, Taiwan's labor institutions provided advantages to implement path-skipping and reverse value-chain strategies (Lee, 2013; Wong, 1999).

Last but not least, Brazil's bifurcated labor institutions too complemented within themselves. In the low-equilibrium sub-system, there were four-low conditions: low wages, low education, low job security, and low unionization. These conditions reinforced each other so that the system was durable. Low education repressed wages. At the same time, based on low unionization, workers did not have the collective power to demand more wages as well as job security. Low job security also decreased the bargaining power of individual laborers and discouraged workers from learning specific skills. These provide conditions for cheap-labor and labor-intensive productions. Under this system, growth was created by increasing the scale of production and managerial rents instead of technology.

However, in its high-equilibrium sub-institutions, workers gained high wages, high education, high job security, and even high unionization. These compositions nearly resembled the simulated LMEs of South Korea except the last component.³⁸² The high wages provided more incentives for trainings and gave a higher demand for education. Together, good education gave a higher wage premium for workers. The high unionization rate gave leverage power to laborers' in strategic sectors, which closely related to high wage premium as well as job security. The high job security stimulated workers to learn and participate in training. This fabrication of four good sub-institutions supported one another and created institutional advantages for Brazil's hi-tech industries. These well explained why some hi-tech industries such as aircraft, petroleum exploration, and automobiles have continuously improved their performance.

³⁸² One possible explanation of this difference was about the performance-based payment developed in Brazil and Korea. In Korea, the performance-based payment was evaluated via many variables including individual performance. Though, the performance-based payment in Brazil was closely related to a profit rate of the company (Silva, 2014). Therefore, relatively, Brazil's performance-based system was more collective. Another possible explanation was the historical legacy of the case. In Brazil, the leftist labor movements were more radical and established before Korea so that they maintained unionization rates higher than Korea. Nevertheless, these were just hypotheses rather than concrete explanations.

Political Economy Implications: Class Conflict, Compromise, and Economic Development

In previous chapters this thesis barely mentioned labor and capitalists as a “class.” In this section, I will borrow the analytical framework from Erik O. Wright to examine the relationships between class conflict, compromise, and economic development in latecomer nations. According to Wright (2000: 958), “The conventional wisdom among both neoclassical economists and traditional Marxists is that, in general, there is an inverse relationship between these two variables: [an] increase in the power of workers adversely affect the interests of capitalists.”

Nonetheless, Wright argued, “Once working-class power crosses some threshold, working-class associational power begins to have positive effects on capitalists’ interests” (p. 959). For example, they can cooperate to upgrade skills, enhance capacity to solve macroeconomic problems, and convince workers to accept technological change (p. 960). In brief, Wright believed that workers and capitalists could compromise and reap mutual benefits. The weak point of the paper is that Wright’s explanations are based mostly on logical and abstract arguments, so readers may doubt whether his idea is right or wrong in the real world.

The experiences of South Korea, Taiwan, and Brazil confirm Wright’s argument. To conduct the analysis, I constructed a weighted conflict index (WCI)³⁸³ and plotted the data together with the level of GDP per capita. There are differences and similarities, as illustrated in **Figures C.6-8**

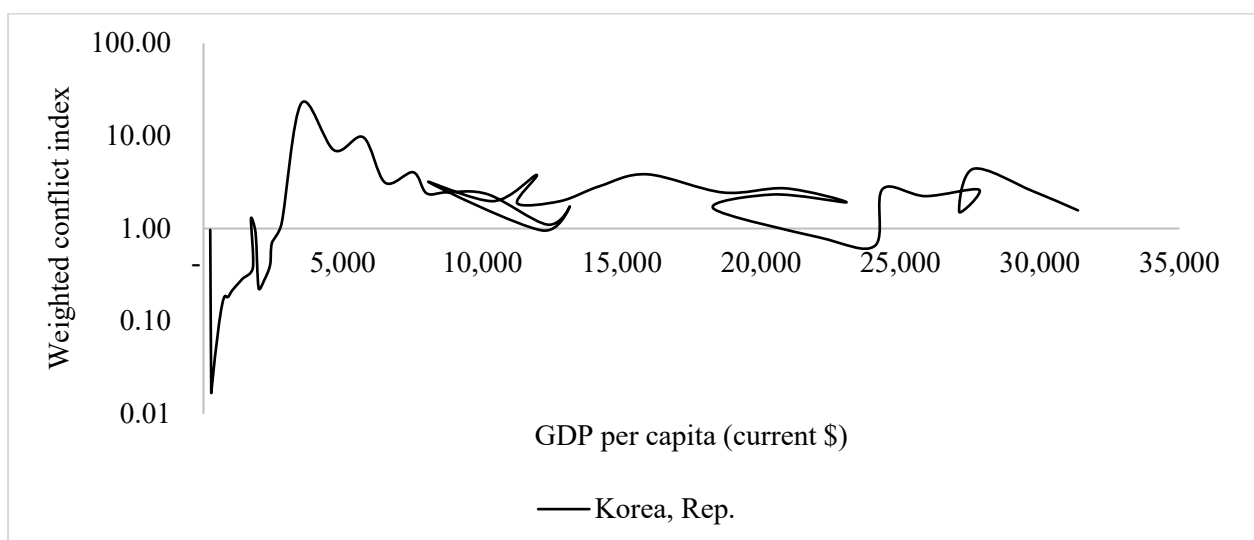
In South Korea, as a baseline case, **Figure C.6** shows that the conflict index among workers and capitalists in South Korea was very low when the country stayed at a low-income

³⁸³ It is the number of strikers per 1,000 population in each case [strikers*1000/population]. The index is plotted in logarithm scale on the vertical axis of **Figures C.6–8**.

level. This is not because workers and capitalists cooperated or had any mutual interests, but because of the very high cost of resistance. At this stage of development, the state and capitalists cooperated closely to generate growth (the so-called *authoritarian-capitalist state*), and they created environments of oppression for the sake of social order and economic growth (the so-called *unilateral capitalists domination game*).

Then, when the country's GDP reached the middle-income level (GDP per capita was around 2,500–3,500 dollars) and the country gradually transformed into a democracy, the conflict index exploded from 0.7 to 22.46, accounting for around 3,200 percent. This led the state and capitalists to change their strategies from oppression to compromise. They quickly found solutions (i.e., increased wages and applied labor-saving technologies); therefore, the conflict index declined and was controlled. Afterwards, the South Korean economy grew abruptly from 7,500\$ to 27,600\$, and the conflict index never went beyond 4.³⁸⁴

Figure C.6: The WCI and GDP per capita, South Korea, 1969–2018

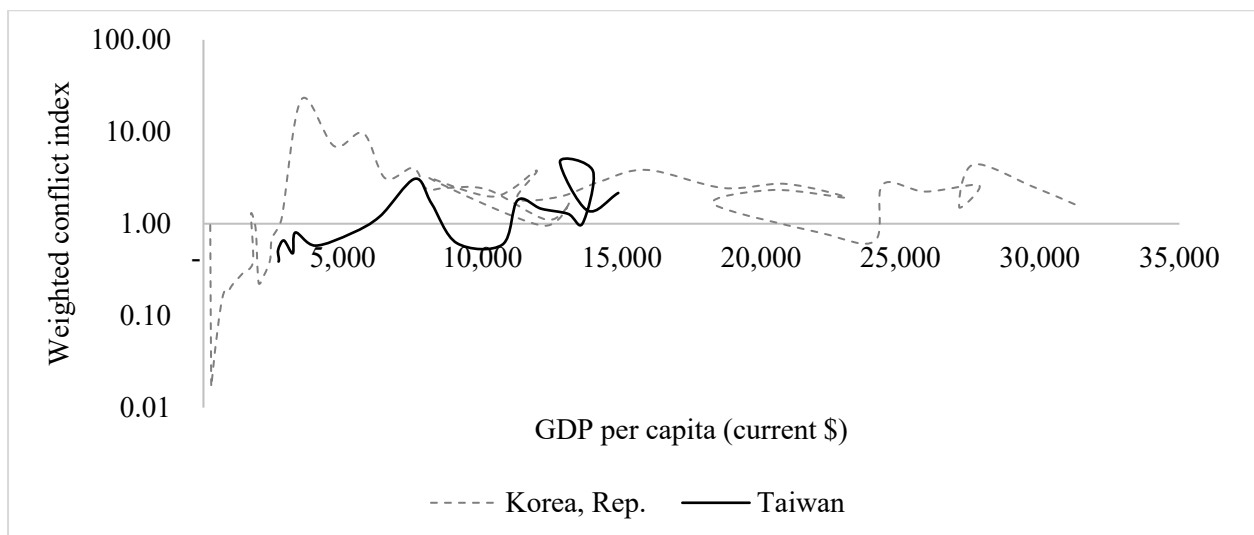


Source: Data from ILO (accessed May 23, 2020)

³⁸⁴ According to Wright's model, this is relevant to the assurance game (Wright, 2000: 972).

Taiwan, according to **Figure C.7**, took a lower-conflict path. Similar to South Korea, the state and capitalists together repressed workers during the initial phase of development. The signal of workers' resistance happened when Taiwan's GDP reached approximately 5,000\$ per capita, and the conflict index increased from 0.58 to 3. After that, the conflict index quickly reduced. The second peak of labor disputes happened when Taiwan's GDP per capita reached approximately 13,000 USD in 1998. At that time, the Asian financial crisis caused economic grievances and stimulated labor disputes. However, it was promptly managed and the WCI quickly declined. This shows that the Taiwanese state and capitalists quickly adjusted their strategies to compromise with laborers before the countervailing force of workers exploded. Although Taiwan had a relatively low level of conflict, it took the same path as South Korea, that is, converting from repression to conflict and to compromise phases.

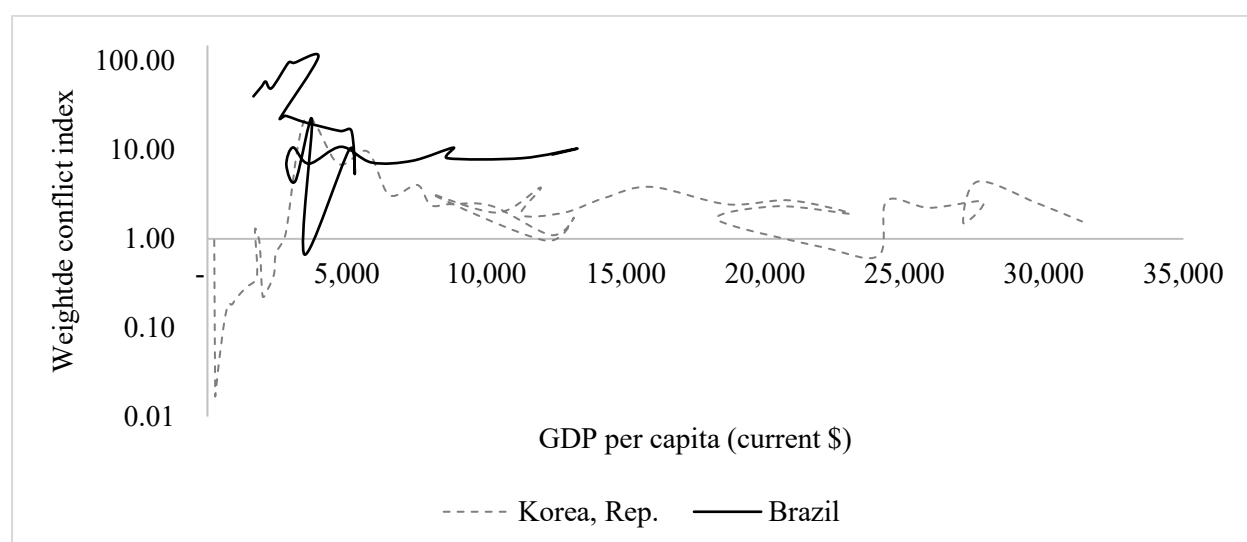
Figure C.7: The WCI and GDP per capita, South Korea (1969–2018) and Taiwan (1960–2000)



Source: Data from ILO (accessed May 23, 2020) and Chiu (2002)

According to **Figure C.8**, the conflict index of Brazil was far higher than in South Korea and Taiwan, even when the country was a low-income one. Considering the level of development measured by GDP per capita, between 1,600\$ and 4,000\$, the conflict index increased straightforwardly from 40 to 110. Then, when development passed the 5,000\$ threshold, Brazilian capitalists and workers implemented relatively compromised strategies. After the 1980s the crisis was resolved and GDP per capita increased from 5,000\$ to 12,000\$ (after the 2000s), and the conflict index was controlled at less than 11.

Figure C.8: The WCI and GDP per capita, South Korea (1969–2018) and Brazil (1985–2012)

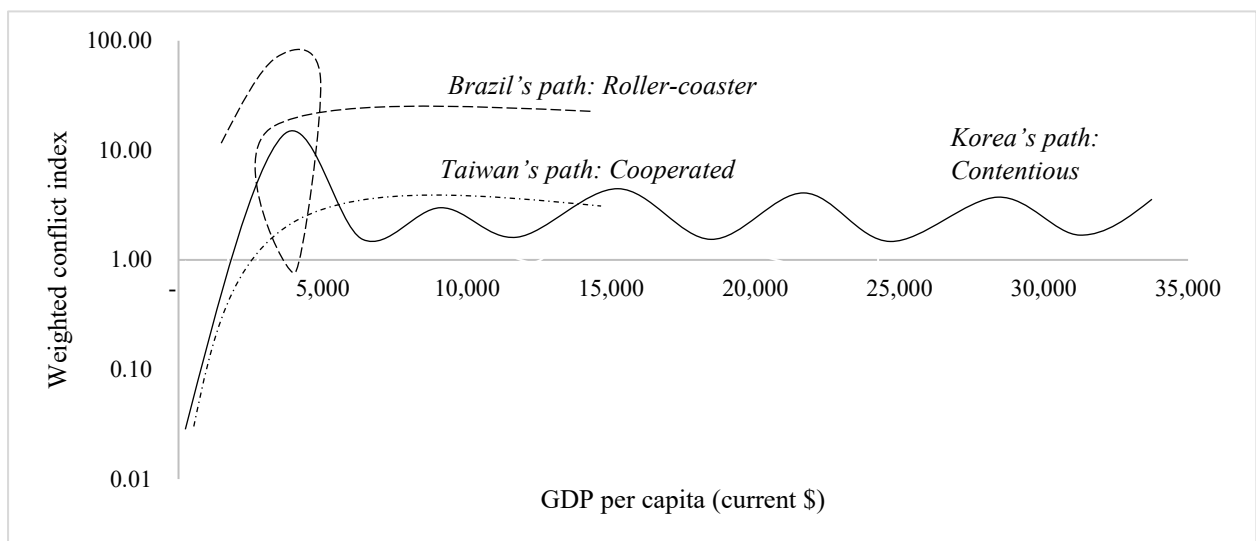


Source: Data from ILO (accessed May 23, 2020) and Reithof (2004)

If we simplify the analyses discussed above into **Figure C.9**, we can see that the 5,000\$ threshold is the critical point, where capitalists and workers in South Korea, Taiwan, and Brazil changed their repressive and contesting relationships into ones of compromise. After they reached a social consensus for development and the labor class could share mutual benefits from growth, the conflict was mostly under control. This is part of the historical conditions of

each case. For example, the class compromise in Brazil could not reduce the conflict index to a similar level of South Korea and Taiwan because it had very radical and high contestation in prior periods.

Figure C.9: Smooth trends of the conflict index in South Korea, Taiwan, and Brazil; given GDP per capita



Concluding Remarks

When you hear the sound of hooves, you think of horses and not zebras. In the same way, scholars neglect the *active roles* of labor in economic transformation. This thesis has tried to bring organized labor back into the theoretical debates; however, “bringing labor back” is an ambiguous phrase. It is like saying labor or anything else matters. It becomes a meaningful argument only if we clearly define the critical contributions of the factor in processes of development.

Looking at all of the thesis findings, the rise of labor movements has at least two impacts. First, it creates the wage surge that stimulates radical adjustments of the capable state and businesses toward a high-tech economy. Second, it determines how labor-related institutions evolve, which closely affects trajectories of capitalism. In this case, labor movements should be defined as *developmental labor*. This thesis observes these mechanisms by closely examining three economies.

In South Korea, Park Chung-Hee reformed the state–business relation and actively implemented industrial policies in the 1960s. From the 1970s, developmental labor emerged and radically demanded higher wages. As a result, real wages increased more than 200 percent between 1970 and 1985. This triggered economic transformations in the 1980s. Industrial conglomerates continually applied labor-saving technologies and the state implemented policies simulated toward a liberal market economy after the 1990s.

In Taiwan, Chiang Kai-shek and the KMT retreated to Taiwan in the late 1940s and reconstructed the strong state in the 1950s. From the 1960s to the 1970s, developmental labor gradually emerged. As a result of the moderate labor movements, they triggered peaceful responsive strategies from the state and businesses in the 1980s. For example, businesses applied labor-complementing strategies to upgrade their production. The state also provided

better welfare schemes for workers. These things transformed Taiwan into a networked market economy after the 1990s.

In Brazil, President Getúlio Vargas reformed the bureaucratic system and created the “strong-enough” state in his first term (1930–45). In the 1950s an initial sign of autonomous labor movements appeared. After the mid-1960s the military regime repressed industrial workers in urban areas; nevertheless, the repressive measures could not control workers who had already been liberated. From 1970 to 1985, the first wave of developmental labor fully mobilized and pushed wages up very fast. This triggered the emergence of capital-intensive and high-tech industries, namely, automobiles, aircraft, and computers. While this momentum was interrupted by the economic crisis in the mid-1980s, developmental labor revived in the 2000s when the crisis ended and the leftist government assumed political power.

Unlike South Korea and Taiwan, Brazil is very large, and developmental labor is unevenly mobilized in the country. For example, unionization rates and labor movements are low in labor-intensive sectors such as civil construction, clothing, and commerce. These sectors can repress wages and maintain labor-cost advantages. In contrast, unionization rates and the militancy of labor movements are high in the capital and tech-intensive sectors, namely, petroleum, electronics, and automobiles. As such, wage growth rates are high and businesses have applied more labor-saving technologies. These uneven adjustments led to the bifurcated market economy, in which labor-intensive and tech-intensive sectors coexist and complement one another.

Similar to T.S. Eliot’s passage, “what we call the beginning is often the end and to make an end is to make a beginning. The end is where we start from,” the new perspective on labor movements and economic transformation, created by this thesis, leads to further interesting but still unanswered questions. For example, can we apply the concept of developmental labor to

other countries? Is it also relevant to forerunners such as countries in North America and Europe? These questions await further investigation in the near future.

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