Case Study 12

Pioneers in Development Success through Trade and Industrialisation Strategy: South Korea and Taiwan in Comparative Perspective

South Korea and Taiwan are two of the original four "East Asian Tiger" economies, also called the "four successful exceptions": whose dramatic economic successes of recent decades influenced the way economists think about development. The other "tiger economies," Singapore and Hong Kong, are also important but they are city states with special histories. South Korea and Taiwan are well-matched for a comparison.

South Korea, located on the lower half of the Korean peninsula, has a population of about 50 million, and an area of about 100,000-square-kilometres (38,750-square-miles), about the size of Oregon, or of Iceland. With about 507 people per km^2 (1,313 per square mile), the country is relatively densely populated given its considerable mountainous terrain.

Taiwan is a mountainous, 36,000-square-kilometre (14,000-square-mile) island off the mainland coast of China, about the combined size of Maryland and Delaware, or a little smaller than that of the Netherlands. Taiwan has a population of about 24 million, roughly half that of South Korea. Outside of the mountainous areas it is relatively densely populated, given the island is about 667 people per square kilometres overall, quite similar to that of South Korea.

Moreover, both South Korea and Taiwan are former colonies of Japan. Both began determined and focused development efforts by the late 1950s, earlier than most. At the time, both were impoverished, recovering from conflict, with largely agricultural economies, and incomes per capita similar to many countries in Africa. In policy, both looked to Japan for lessons on how to industrialise rapidly by taking full advantage of close engagement with the US, as well as Japan. They began exporting at a propitious time in the 1960s, when trade was in one of its phases of rapid expansion, as in the late nineteenth century and the 1990s and early 2000s. South Korea and Taiwan are among the few countries generally acknowledged internationally to have moved decisively from developing to developed country status since the Second World War—although, interestingly, domestic opinions about development status are very mixed within these countries.

Many developing countries have reached middle-income status but remained there; a much smaller number have reached nominal high-income status but are still not considered fully developed (either by their own definitions or by independent experts). Only a handful of countries are considered to have graduated to the ranks of advanced industrialised economies, of which South Korea is perhaps the most prominent example. The example of Taiwan is less well-known but was highly influential regionally. A counterpoint is Brazil, the case study for Chapter 13, which many observers now view as a key example of a country in a "middle-income trap."

South Korea

In the mid-1950s, South Korea was one of the poorest countries in the world. The country is now classified by the World Bank as a high-income economy, with 2018 Purchasing Power Parity (PPP) income per capita of $40,450 ($30,600 calculated at exchange rates). Korean consumer electronics and other goods have become synonymous with high quality at reasonable prices. Even more impressive are Korea's social development achievements. By 2004, Korea had attained the highest postsecondary enrolment rate in the world, with graduates concentrated in technical fields. Ironically, a major policy question in subsequent years has been whether corresponding

jobs could be found for all these highly educated citizens, with many Korean young people worried about their future.

By 2018, life expectancy reached 83 years, one of the highest in the world. The country regularly ranks even higher on the Human Development Index than it does in income per capita, and on the 2018 New Human Development Index, South Korea ranked 22nd globally—eight places higher than predicted by its income. How did South Korea succeed so spectacularly where so many other developing countries have not? Certainly, one component was its robust industrialisation strategy. Exports, particularly manufactures in such key sectors as consumer electronics and motor vehicles followed by high technology, have grown at an extraordinary rate in Korea. One apparent reason for South Korea's remarkable industrial achievements was a national strategy that has favoured the promotion of exports reflecting increasingly sophisticated skills and technology. Strong financial incentives for industrial firms to move up the ladder of skills and technology have been built into most of its policies.

In its years of rapid industrialisation, South Korea used at least 19 major types of export promotion-oriented industrial policy interventions. Here we focus specifically on policies that were active in its period of rapid catch-up; note that only some of these policies were in effect in any one industry and at any one time and that subsidies were considerably scaled back in later years:

1. Currency undervaluation. The effective exchange rate (EER) for exporters was kept higher than that for importers. As early as 1964, when most developing countries were practising currency overvaluation, South Korea's EER for exports was 281 and its EER for imports was 247, reflecting not trade neutrality but a pro-export bias.
2. Preferential access to imported intermediate inputs needed for producing exports, with strict controls to prevent abuse. Rebates were paid only after completion of the exports had been documented.
3. Targeted infant-industry protection as a first stage before launching an export drive. South Korea has had a high dispersion of effective rates of protection even with a relatively low average.
4. Tariff exemptions on inputs of capital goods needed in exporting activities. This is a price incentive, whereas preferential access (intervention 2) is based on quantity restriction.
5. Tax breaks for domestic suppliers of inputs to exporting firms, which constitutes a domestic content.
6. Domestic indirect tax exemptions for successful exporters.
7. Lower direct taxes on income earned from exports.
8. Accelerated depreciation for exporters.
9. Import entitlement certificates (exemptions from import restrictions) linked directly to export levels. South Korea long has maintained an extensive list of items generally prohibited for import, including both luxury goods and import substitution targets. Profitable exemptions from this prohibition have often been available for firms exporting specified goods that have low profit margins.
10. Direct export subsidies for selected industries (no longer in use).
11. Monopoly rights granted to the firm first to achieve exports in targeted industries.
12. Subsidised interest rates and preferential credit access for exporters in selected industries, including automatic access to bank loans for the working capital needed for all export activities. Medium- and long-term loans for investment were rationed and often available only to firms that met government export targets and pursued other requested activities.
13. A system of export credit insurance and guarantees, as well as tax incentives, for overseas marketing and post-shipment export loans by the Korean Export–Import Bank.
14. The creation of free-trade zones, industrial parks, and export-oriented infrastructure.
15. The creation of public enterprises to lead the way in establishing a new industry. Howard Pack and Larry Westphal found that "the share of public enterprises in [South] Korea's nonagricultural output is comparatively high, being similar to India's."

16. Activities of the Korean Traders Association and the Korea Trade Promotion Corporation to promote South Korean exports on behalf of South Korean firms worldwide.
17. General orchestration of sector-wide efforts to upgrade the average technological level through the use of a new generation of machinery.
18. Government coordination of foreign technology licensing agreements, using national bargaining power to secure better terms for the private sector in utilising proprietary foreign technology.
19. The setting of export targets for firms (since the early 1960s). Firms set their own targets, which could be adjusted by the government. Enforcement of export targets in South Korea was mostly based on moral suasion rather than administrative sanctions or economic incentives, but the evidence suggests that these have been among the most powerful incentives.

South Korea as a whole had an extensive pattern of "rituals" reinforcing these economic incentives with cultural ones. In the period of rapid catching-up, a key ritual in the nation's economic life was the monthly national trade promotion meeting, chaired by the president. According to Yung Whee Rhee, Bruce Ross-Larson, and Gary Pursell, these meetings were remarkable "gatherings of the ministers and top bureaucrats responsible for trade and the economy; the chief executives of export associations, research organisations, and educational institutions; and the heads of a few firms, mainly the general trading companies and other large firms." They noted that the prestige and power of the roster of attendees demonstrated that the meetings were intended to ensure active "coordination between the private and public sectors." Firms were represented either by their particular export association or, in many cases for large firms, directly. After briefings, awards were typically presented for excellent export performance. Nationally, many types of annual export prizes were publicly awarded and were proudly displayed by companies, readily visible to visitors.

Richard Luedde-Neurath has described how South Korea maintained, in addition to domestic-content regulations, an extensive system of import controls that lasted well into the 1980s. What he terms the "Korean kaleidoscope" included restrictive trader licensing, widespread quantitative controls, systematic foreign-exchange allocation under the Foreign Exchange Demand and Supply Plan, required advance deposits (which have been as high as 200% of import value), and capricious customs practices. For example, prospective importers had to achieve minimum export earnings before becoming eligible to import.

Pack and Westphal reported that "through import restrictions, selectively promoted infant industries were often initially granted, whatever levels of effective protection were required to secure an adequate market for their output as well as a satisfactory rate of return on investment." They also found that, after the export promotion reforms of the early 1960s, "imports . . . for the domestic market remained subject to tariffs and quantitative controls." As Robert Wade noted, these tariff rates appear much higher when they are averaged over nonexport-related imports only. Peter Petri presented evidence that South Korea has had "an unusually protection-prone export bundle."

Thus, in the South Korean case, import controls may be called a "handmaiden" of successful industrial export promotion—in contrast to the simpler neoclassical formulation often advocated at that time, that free trade would serve as a "handmaiden of growth."

First, many export industries begin as infant industries requiring protection. Luedde-Neurath argued that the developing industrial sector functions as a whole and benefits from externalities and linkages between firms, making a market failure case for general protection of manufacturing at a critical stage of development. Alice Amsden pointed out that in South Korea, subsidisation across divisions within firms as a company enters new export markets, such as shipbuilding, is intentionally facilitated by the government. Diversified companies are made to understand that they expected to use the monopoly rents that they earn from these various import barriers as working capital for expansion into new sectors. The state also offers supplemental support for entering new markets as needed. As Pack and Westphal summarise the evidence, "something approximating neutrality" applied to industries that had become established and at least minimally profitable. Despite this average, they argued that "there has been substantial industry bias in favour of the promoted infant industries."

Moreover, closely regulated large firms could help to make up for what Sanjaya Lall noted were deficiencies in domestic "markets for capital, skills, technology and even infrastructure." Lall argued that it was feasible under these conditions and large corporate scale for the highly diversified chaebol to internalise what are normally market-level functions. At this scale and level of protection and implicit subsidies, Lall argued that the chaebol were able financially to "undertake the cost and risk of absorbing very complex technologies," which they often sought to improve upon over time through internal research and development activities. It was through such means, as Lall argued, that ultimately the chaebol could proceed to establish "world-scale facilities and create their own brand names and distribution network." This approach presented risks both to the firm—and to the government itself—if firms renege on their part of the bargain. But Lall argued that, in practice, these problems could be avoided by means of "the strict discipline imposed by the government: export performance, vigorous domestic competition and deliberate interventions to rationalise the industrial structure."

Taken together, South Korea has offered a case in point for how problems of coordination failure, of the type examined in detail in Chapter 4, could be successfully addressed with a concerted "big push" policy approach. As we will see, although there were significant nuances, Taiwan employed analogous policies. Dani Rodrik argued that these perspectives helped explain "how South Korea and Taiwan grew rich."

Westphal, Rhee, and Pursell concluded that South Korea's export industrialisation "has overwhelmingly and in fundamental respects been directed and controlled by nationals" and that "technology has been acquired from abroad largely through means other than direct foreign investment." The role of multinational corporations in the economy (see Chapter 14) has been much smaller than in most other middle-income countries. Sanjay Lall presented additional evidence that the deliberate fostering of large chaebol conglomerates was important to South Korea's industrial strategy, noting that they "were hand-picked from successful exporters and were given various subsidies and privileges, including the restriction of entry." These entry restrictions applied specifically to foreign firms, but there were sometimes restraints on domestic competition as well. Lall found that these benefits were available only in exchange for furthering the government's industrialisation strategy to develop new more capital-intensive and technology-intensive sectors that could, ultimately, successfully compete in export markets.

Moreover, Erik Thorbecke and Henry Wan concluded that the establishment of South Korean brand names rather than contract (or original equipment) manufacturing were the result of government support of heavy industries. Peter Evans examined ties between the state and industrial elites in South Korea (as well as Brazil and India) and concluded that it was the interaction between genuine state autonomy and the "dense connecting networks" of social ties between state and private sectors—which he terms "embedded autonomy"—that is key to a successful industrialisation strategy. Again, the argument is that strategic coordination among the key actors, whether in the private sector alone or in the public and citizen sectors as well, is critical to success.

Sanjaya Lall concluded that, in South Korea, in sharp contrast to Latin American-style import substitution, "industrial targeting and promotion was pragmatic and flexible, and developed in concert with private industry." A focused and collaborative approach made it easier for government to manage what might otherwise have become far-flung involvement in production decisions. Lall pointed out that, at any given time, only "a relatively small number" of sectors were subsidised and otherwise assisted. Moreover, the negative effects of import protections "were offset by strong export orientation."

Also important to South Korea's success was that it avoided the temptation to intervene in sectors, including new entrepreneurial ventures, that were not central to the current plan. If these private ventures proved successful, the government would include their sector in future strategy considerations.

Unquestionably, in the late 1980s and 1990s, South Korea substantially liberalised, particularly before but also after the 1997 financial crisis and subsequent severe recession. One open question is whether South Korea would have done as well had it liberalised sooner. Some economists have argued that South Korea would have industrialised even faster if it had maintained a free-trade policy from the beginning. Other analysts, such as Ha-Joon Chang, Hong-Jae Park, and Chul Gyue Yoo, argue that some aspects

of mid-1990s liberalisation were a major cause of the 1997 crisis. In particular, capital account liberalisation allowed first for speculative inflows and then for outflows once the crisis hit. But the effect was smaller than for many other countries that have experienced crises, partly because of the significant increase in saving and repatriation of South Korean capital abroad.

But industrial policy was active, if more limited, after the crisis, emphasising South Korean entry into leading-edge, high-technology fields. In some years, in the 1990s and 2000s, if Korea were still counted as a developing country, it would have had a share of half or more of the developing world's private sector industrial research and development budget. For example, the country's Highly Advanced National Projects Programme supported the development of high-tech products that the government believed would successfully compete with those of advanced countries such as the US and Japan within one to two decades and also supported development of core technologies believed essential for South Korea to achieve capabilities for independent national innovation. South Korea's Ministry of Trade and Industry targeted new materials, computer-controlled machine tools, bioengineering, microelectronics, fine chemistry, optics, and aircraft as fields in which it predicted that the country could catch up with the US and Japan economically and technologically. Even at this much higher level, Korea's basic industrialisation strategy remained the protecting and subsidising of activities concluded to be the next stage in upgrading the technology and skill content of production.

Thus, what stands out in the case of industrial policy in South Korea is the selective involvement of the government in projects in which technological progress (product, process, or organisational) has been a central concern. This policy theme may be traced from early attempts at achieving technology transfer in relatively basic industries to the nation's current efforts to develop original innovative capacity in high-technology sectors.

What are the alternative arguments for South Korea's industrialisation success? Beyond the claim that the economy could have grown even faster if government had stayed out of industrial strategy, one can also argue, like Joseph Stern and his colleagues, that the central role of the state was necessary in industrial policy in large part because of the way that government set up the rules of the economic game, including government allocation of credit, which ensured that major initiatives such as the chemical and heavy industry drive were impossible without government direction. Because South Korea often looked to the example of Japan in setting industrial policy, one could argue that the country followed a "patterns of development" analysis rather than a classic industrial policy. The costs of industrial policy in Japan did not become apparent until many years later, and the same could prove true of South Korea. The 1997 financial crisis may well have been abetted by some of the less sagacious of the industrial policy legacy. But in South Korea, few experts hold the view that the strategy was seriously flawed. And, as the economy matures, the government's role in the productive sector will continue to become more indirect.

The interpretation that seems most favoured by the evidence is that the South Korean industrial policy mix has served to overcome market failures involved in the process of technological progress. By the 1997–8 crisis, the chaebol came to be seen by many observers as liabilities to further growth. They were also seen as political liabilities or as companies that unfairly received government advantages in the past from which other companies did not benefit. Subsequently, antitrust regulations had some success in making the South Korean economy more competitive—although the concentration in just one company, by 2019 the concentration in just one company, Samsung—with about double the revenues and exports of the second-largest—and much of the rest in a dozen others, remains unique for a large economy.

As an energy importer, South Korea's economy was negatively affected by the oil shocks of 1973 and 1979, as pointed out by Vittorio Corbo and Sang-Mok Suh. Its current account deficit reached 8.7% of gross national income (GNI) in 1980. At the onset of the 1980s debt crisis examined in the next chapter, South Korea was included on the widely noted "17 highly indebted countries" list. But with real interest rates rising dramatically from 1979, South Korea began adjusting early. This is in marked contrast to other countries hurt by the debt crisis, particularly those in Latin America as well as some regional borrowers, notably the Philippines, which continued borrowing aggressively despite the increase in rates. Most other countries on the original highly indebted list were to experience a long period of slow growth through the 1980s, which became known as Latin America's

"lost decade of growth" (and sub-Saharan Africa's two lost decades). In contrast, South Korea continued with the adjustment it had already begun. Despite the concerns generated by South Korea's debt-to-GNI ratio of about 50%, the country's ability to pay was never really in doubt. By 1985, the country had lowered its current account deficit to just 1.1% and then moved to a surplus of 2.8% of GNI in 1986, as rapid growth had now returned to the country.

Growth was briefly interrupted again in the East Asian "contagion" crisis. The rapidity of recovery of the South Korean economy from the 1997–8 financial crisis surprised many observers, but in some ways, its speed was foreshadowed by the unusually rapid recovery in the 1982 debt crisis. South Korea borrowed the then-enormous sum of $21 billion from the IMF in December 1997, evoking great concern at the time, but went on to repay the loan ahead of schedule. The South Korean Government implemented needed reforms quickly. The country had reached a nearly developed stage, and adjustment was easier than for other afflicted countries, notably Indonesia.

When the very different 2008 global crisis erupted, exports from South Korea, now a high-income country, were severely hit. But the country's fairly rapid adjustment—unusual for the fully-industrialised club in which it now found itself—again underscored both the resilience and the robustness of the economy and its policymaking.

South Korea will face steep challenges in the coming years. One that will be common to many newly developed countries is a low birthrate and long-term population decline (see Chapter 6). Another challenge that is unique to South Korea is how it will handle the inevitable collapse of the regime in North Korea. Closely related is the problem of economic and diplomatic relations with China. Eventually, South Korea will have to address the high concentration of industry, in which just three of the chaebol, Samsung, LG, and Hyundae, control a large fraction of output and employment. But societal resilience is one of the most important and enduring benefits of successful economic development—something the country will continue to draw upon.

Taiwan

The experience of Taiwan was a major impetus behind the changes in economic policy instituted in the People's Republic of China (PRC) beginning in 1978.

Taiwan racked up a measured annual economic growth rate averaging about 7% over the four decades from 1960 to 2000. Taiwan's economy grew nearly 10% annually in the 1965–80 period, faster than any other country. Despite its now high-income status, with a per capita income of $13,925 in 2000 at market exchange rates ($22,646 in 2000 at PPP), Taiwan continued to grow, at a rapid rate of 5.7% on average over the 1996–2000 period. Sustaining such high rates over such a long stretch of time was unprecedented until the subsequent growth of China itself (see the case study in Chapter 4). At least as important, Taiwan has achieved universal elementary and middle-school education (9 years are mandatory), a healthy population with a life expectancy of 75 years, and an infant mortality rate of only 5 per 1,000 live births. Absolute poverty has essentially been eliminated, unemployment is extremely low, and relative inequality is modest even by developed-country standards.

Taiwan has had to adjust to some of the changes that economies that reach the threshold of high-income status must confront. The GDP growth rate fell to just 2% in the 2000–10 decade. Like South Korea, Taiwan has a below-replacement fertility rate, and its population growth rate has now dropped to less than 0.25% per year. There has been a "hollowing out" of basic manufacturing as plants have moved to (mainland) China in search of lower-wage labour. Production that has remained has been forced to shift rapidly to high-tech products and processes in the face of rising competition in basic industries from other developing countries. Continued uncertainty clouds the island's political future, given the forceful response from China in response to any hint of Taiwan independence, as China regards Taiwan as a renegade province.

The resulting business uncertainty has had at least some dampening effect on investment. But Taiwan has also transformed itself into a credibly and competitively democratic polity with a vigorously free press and far less corruption and greater government transparency than its neighbours. Taiwan's achievement stands in contrast to many other economies that started in similar—or even better—circumstances in the postwar world.

Competing Explanations for Success Taiwan's success has been ascribed to many factors, including an emphasis on education, extensive infrastructure development, early and thorough land reform,

very high rates of saving and investment, a mixture of constructive foreign influences and diffusion of commercial ideas from Japan and the US, an effective government industrialisation strategy, the free market's release of human energies and creativity, a 1960s boom resulting from the Vietnam War, the initiation of an export-led growth strategy in the midst of the rapidly expanding world economy of the early 1960s, direct US aid—and Taiwan's use of that aid for investment rather than consumption, the work ethic and productive attitudes of the Taiwanese labour force, a long history as an entrepreneurial culture, the movement into entrepreneurship of capable local islanders who sought opportunities for advancement but were blocked from the political arena, and the survival instinct—the necessity of economic development as a defence against attack from the PRC. Instead of having to choose from just one or two of these factors, an alternative interpretation is that development success requires many things to work well together, and hence there may not be so many explanations after all. Many of the cited factors may reflect necessary but not sufficient conditions. In this view, the key is to understand the magnified impact of having many development factors operating successfully at the same time (see Chapter 4). Let's examine the factors cited more closely.

Emphasis on Education Six years of education became compulsory in Taiwan in 1950. Especially impressive were enrolment rates for girls, which surpassed 90% for those aged 6 to 11 by 1956. (The comparable figure for boys in that year was over 96%.) As discussed in Chapter 8, emphasis on girls' education is widely viewed as one of the most important factors in successful development.

When compulsory education was expanded to nine years in 1968, there were doubts that the economy could afford it. While 9 years remains a high minimum educational standard for any developing economy, in 2014, Taiwan raised its compulsory schooling further, to 12 years. Other features have also been in play. Students go to school seven hours a day, five and a half days a week. In 2002, the overall student–teacher ratio was less than 20. Teacher salaries are relatively high, comparable to lower-middle management in Taiwan. Taiwan's models were the US for general education and Japan for vocational education. Greater emphasis is placed on general rather than on job-specific skills. But incentives for close relationships between education and business are also stressed. Tax breaks are given for company donations of personnel and equipment to schools.

Assuming that the world development community is serious in its Sustainable Development Goal and Education for All targets for ensuring that all children complete six years of elementary school, the early experience of Taiwan is instructive. Enrolment was real and not just on paper, students generally remained in school after they enrolled, teachers taught seriously, and corruption was kept to a minimum. The contrast in most of these respects to today's low-income countries is striking.

Extensive Infrastructure Development Development of infrastructure has been widely cited as a crucial factor in successful development. A major highway, for example, is argued to represent a "growth pole" around which industrial and commercial development can consolidate and grow. From the period of Japanese colonial rule (1905–45), Taiwan inherited an infrastructure system that was far superior to that of most poor countries. The Japanese built roads, ports, and railroads to facilitate their own acquisition of rice and other farm products from the island. But this same infrastructure became a vehicle for national industrial growth from the 1950s. This endowment was supplemented by the government's own extensive programme in the 1950s and 1960s. Taiwan's army was too large for the island, a legacy of the pre-1949 control of the mainland by the governing Kuomintang, or Chinese Nationalists. Thousands of soldiers participated in an apparently voluntary programme to retire from active military service to build infrastructure, including the technically challenging east–west highway projects, a programme reckoned in Taiwan to be a major factor in its subsequent success. In more recent years, the emphasis has moved to telecoms and other high-tech infrastructure.

There was some waste, fraud, and abuse in infrastructure spending, though apparently less than average. When the press was freed, a number of infrastructure scandals were uncovered, many affecting Taiwan's capital, Taipei. The political openings have played a role in keeping infrastructure development and other development necessities on track, another reflection of the interactive roles played by several contributory factors in economic growth.

Early and Thorough Land Reform Not burdened by close political ties to landlords, the Taiwanese Government implemented a thoroughgoing land-to-the-tiller reform programme in the 1950s. Landowners received stock in state-owned enterprises in return for transferring land to peasants. This was a major factor in the extremely rapid growth of agricultural productivity in this period—a crucial foundation for later industrialisation. Other countries with similar land reform efforts, such as South Korea and Japan, have seen impressive results. The US had similarly benefited from nineteenth-century programmes such as the Homestead Act. In contrast, development in Latin America, as well as in some Asian countries such as the Philippines, has been severely hampered by the lack of land reform.

Very High Rates of Saving and Investment Most analysts agree that capital formation is crucial to successful development. Developed countries have much higher levels of capital per head than less developed countries, one of the factors enabling developed countries to enjoy higher productivity and incomes. Taiwan's saving rates were among the highest ever recorded, reaching 30 to 40% in the 1950s and 1960s. The saving ethic is reputed to be deeply rooted in Taiwanese culture. Parents teach children the overriding need to save for a rainy day. Public policies keep real interest rates for savers relatively high and tax-free. Interestingly, like fellow Tiger South Korea, as just reviewed, Taiwan has a relatively low foreign-capital share in total investment—about 10%. High rates of saving and investment are important factors in development but not sufficient ones. India has substantially increased its rate of investment since independence in 1947 but not until recently its growth rate, partly because capital equipment has been expensive there and partly because investments have not been made in the most productive sectors at any point in time.

Diffusion of Commercial Ideas High saving alone will not create a development miracle without productive ideas among entrepreneurs about what use to make of it. Taiwan had considerable success in absorbing commercial ideas from Japan and the US, largely due to the diligence of thousands of individual small companies. But government also played a role, through agencies such as the China External Trade Development Council (CETDC) that combed the world, especially the US, for ideas on how Taiwanese firms could upgrade their technology and adapt to enter industrial markets. Donald Keesing offered insights into the CETDC's operation from his field research in the late 1980s: market research in CETDC's New York office as of 1980 was based on an active search for items that could be sold in the US. The search began with an analysis of the size and origin of US imports, followed by a preliminary study of the price and quality of the more competitive imported and US products. From this, the officers in New York reached an estimate of the likelihood of Taiwan, China, firms competing successfully against offerings already on the market. (They claimed to understand the manufacturing capabilities of Taiwan, China, firms well enough to do this.) Once a likely product was identified, the office asked firms in Taiwan, China, to send it samples of the product and price lists. Representatives of the office would then visit importers, wholesalers, and other traders with samples and price lists, prospecting for sales. They would try to get reactions to the product. If the buyers were interested, they would telex the manufacturers. If not, they would find out why and then suggest appropriate steps to the manufacturer. These observations led to perhaps the most complex set of development issues—the roles of state and market in successful development.

Effective Government Industrial Policies As with South Korea, a traditional neoclassical explanation for Taiwan's success had been the operation of the unfettered free market. In contrast, Robert Wade and others have shown that Taiwan employed extensive government industrial policies and have presented somewhat controversial evidence that Taiwan's success is due, in large measure, to the effectiveness of its industrial policy. Taiwan has had active industrial policy systems in place to license exports, control direct foreign investment both in and from Taiwan, establish investment in priority sectors, and concessional credit for favoured industries. The government plays a much less active role today, now that developed-economy status has been essentially attained, but it is interesting to view the roles played in Taiwan's more formative development stages.

Taiwan's economic history began with a very highly dirigiste, or state-directed, import substitution-oriented industrialisation in the 1949–58 period. Reforms in 1958 switched intervention to export promotion and introduced market forces. But

what emerged was not a free market but merely a less thoroughly planned economy. Into the 1980s, all imports and exports in Taiwan had to be covered by a licence. Imports were categorised as "prohibited," "controlled," and "permissible." Controlled goods included luxuries and some goods produced locally with reasonable quality, in sufficient quantities, and whose prices were not more than a narrow margin (about 5%) above comparable import prices. Because the controlled list was larger than the published one, not all "permissibles" were automatically approved. As Wade shows, a potential importer of an item on the hidden list had to provide evidence that domestic suppliers could not meet foreign price, quality, and timing-of-delivery terms. Wade presents evidence that their function was to jump-start growth industries by providing domestic demand for products targeted by the government. Then aggressive incentives were provided to induce companies to begin to export these products. Wade's interpretation of the relative success of this import substitution programme is consistent with an emphasis on market incentives. He argued that because it controls quantities of foreign goods entering the local economy, the government can use international prices to discipline the price-setting behaviour of protected domestic producers. The government demanded to know good reasons why domestic prices of protected items were significantly higher than international prices, especially in the case of inputs to be used for export production. In this way, domestic prices for controlled goods could be kept near world price levels through the threat of permitting imports, even without free trade of goods across national borders. Wade concluded that an effective government threat of allowing more goods in can itself be sufficient to hold prices down, despite trade protection. Thus, the argument is that government is able to play an active role in industrial policy without compromising the vitality of market incentives.

Clearly, Taiwan's economy has been far from a free market, but explanations for Taiwan's success other than its actively interventionist policies can be given. In particular, general policies such as support of basic education and encouragement of high rates of saving cannot be ruled out as more important factors in Taiwan's success. Many entrepreneurs of small businesses in Taiwan seemed to feel that government has done more to harass them than to help them. And the stable, consistent macroeconomic policies in Taiwan and elsewhere in East Asia also stand in dramatic contrast to much of the rest of the developing world—especially the poorest-performing regions.

Market Incentives Even if entrepreneurial dynamism is hard to measure precisely, it is in evidence throughout the island. Incentives to produce wealth rather than merely to seek a share of existing wealth (rent-seeking behaviour) are established with solid property rights and not significantly undermined by other policies. Certainly, Taiwan's Government has not always been a highly efficient engine of progress. The mere fact that the ROC administers both a central and a provincial government covering exactly the same territory presented many opportunities for inefficiency. This is, in significant part, a legacy of the Chinese civil war, which the ROC lost. Moreover, until 1991, the government ruled Taiwan under martial law, creating opportunities for corruption. Indeed, in the 1990s, new corruption scandals were reported almost daily in Taiwan's many independent newspapers. The free election of Lee Teng-hui as president in 1996 was the culmination of a smooth five-year transition to democratic governance. Elections have been highly competitive since then and are generally viewed as free and fair; power has changed hands peacefully.

Other Factors The other explanations listed earlier were also somewhat important but unlikely to have been critical, given the decisive role of the seven factors just discussed. They are also special features that other economies cannot easily encourage through policy measures. The 1960s Vietnam War boom affected countries such as the Philippines as much as, if not more than, Taiwan, without lasting effect. US aid to Egypt has been far larger and substantially used for investment purposes but with less impressive results. Undoubtedly, the work ethic and attitudes of the labour force were important. At the same time, they could not be called into play without the right incentives in place and without the availability of economically productive ideas. And a work ethic can be stimulated by the right incentives. A long history as an entrepreneurial culture may also be important, but in the long run, these will similarly be influenced by incentives for entrepreneurship.

The fact that Taiwan benefited from beginning export-led growth in the early 1960s, a time

of unequalled world growth and a wide-open US market, was an undoubted advantage. On the other hand, other countries such as Thailand successfully grew through manufactures exports in the 1980s, despite far slower US and world income and trade growth rates. The PRC has grown faster over the past quarter-century than Taiwan ever did, despite sometimes sluggish world trade growth. Many of the PRC's reform policies since 1978 have been copied from the experience of Taiwan. The idea that local islanders had few opportunities outside of entrepreneurship has not been proved; in any case, Taiwan seems hardly to differ in this regard from the situation under many other authoritarian regimes around the developing world that have suffered negative per capita income growth. As to the necessity of economic development as a defence strategy, one cannot single out Taiwan. The US guaranteed Taiwan's defence after President Truman sealed off the island in 1950 in response to the Korean crisis. Other developing countries lacking the natural defences of an island and as gravely threatened by hostile neighbours have made little development progress in the same investment, an effective industrial policy, and ensuring that marketplace incentives to produce wealth rather than to seek a share of existing wealth are established with solid property rights and not undermined by other policies.

The government of Taiwan focused increasingly on collaborating with the private sector on more advanced research and development as Taiwan moved successfully into high-technology fields. Taiwan's dynamic firms have invested vast sums in the PRC. Taiwan has been striving to adapt to a future in which relatively unskilled industrial jobs will no longer be available. The focus has been on education; high-technology production in several sectors, including computers, software, and biotechnology; and financial development. The focus continues to be on development through increasingly sophisticated exports. As Erik Thorbecke and Henry Wan point out, Taiwan launched its competitive semiconductor industry by using government laboratories to develop basic know-how and then formed private spin-off companies from these laboratories. And, as noted by Thorbecke, Tung, and Wan, the government has also provided indirect but effective incentives to local firms that are providing key inputs to high-tech exporters and achieved success notably in the synthetic fibre and semiconductor industries. Thus, continued development of government competence and effectiveness in industrialisation strategy may be critical as a developing economy approaches developed-country status. The economy may still face multiple equilibria (see Chapter 4) regarding its possible location on or below the world technology frontier. Haider Ali Khan provides an interesting analysis of Taiwan's efforts to transform its economy into a centre of original research and development via a "positive feedback loop innovation system." The fact that Taiwan weathered the enormous storms of the East Asian financial crisis in 1997–8 strongly signalled the economy's development and resilience. This was further tested in the 2007–9 crisis, in which the economy was buffeted but not as severely affected as many countries. The biggest problems looming for Taiwan are the resolution of the conflict with the PRC and the wholesale moves of Taiwan's industrial base to that country. The two issues are interrelated, most notably because greater interdependence between these economies is likely to raise the costs of war and lead to a peaceful resolution of the island's status. The resumption in 2008 of direct mail and flights between Taiwan and mainland China, after 59 years, was a hopeful sign that violence can be avoided. In 2019, polls suggested that many in Taiwan became more vocally determined to remain independent from China, after the unsuccessful attempt to introduce extradition laws in Hong Kong that were widely viewed in Taiwan, as well as in Hong Kong, as a threat to basic freedoms. While support for immediate reunification was already less than 3%, and there is limited support for unilaterally declaring independence, the primary reason given is fear of attack; a majority say they are already de facto independent and want to stay. Some observers think the current status quo potentially could be maintained for decades to come.

Are there any drawbacks to Taiwan's growth? Certainly, environmental considerations have taken a backseat to economic growth until recently. Taipei suffered from exceedingly noxious air pollution at least well into the 1990s, for example. Even with increased government attention, as one Taiwanese official frankly put it, "The private sector is flexible and vibrant in Taiwan—where there is profit, there is activity." Despite a nominal beginning at land use planning, a drive down the island's west coast

reveals a dizzying jumble of agricultural, industrial, commercial, and residential uses, defying any economic rationale, let alone aesthetics. Industrial sites sat perched on landfill over rice paddies and prawn pools, into which some waste products inevitably seep. Only after much Western pressure was attention given to endangered species. For the most part, housing remains relatively small and basic in Taiwan. Again, with the opening of the PRC, many Taiwanese companies are moving lock, stock, and barrel to the mainland; some "hollowing out" of the industrial sectors of the economy, similar to what has been seen in the US and the UK, has occurred, but investment in the PRC by Taiwanese firms has arguably brought at least as much opportunity as problems. Reduced industrial production as manufacturing moved to China was, perhaps, the largest factor in an improved environment. Taiwan was hit significantly by the global recession in 2008 and 2009, before rebounding.

In summary, although the caveats qualify Taiwan's success and point to some necessary future directions, they do not negate its impressive accomplishments. Taiwan illustrates well the complex mix of factors behind the kind of rapid economic and social progress often termed a development miracle. The factors that stood out were education, infrastructure, land reform, high rates of saving and investment, absorption of commercial ideas, effective industrial policy in formative stages, market incentives, and policies and incentives for continued improvement and upgrading in skills, specialisation in design skills, flexible production operations, productive knowledge, and efficiency. Thus, the transformation in Taiwan is not really a "mysterious" miracle; it can be understood as the result of policies consistent with the broader research on economic development.

Taken together, the cases of South Korea and Taiwan demonstrate the genuine possibility of achieving a transition from being one of the world's poorest countries to reaching fully developed status in the span of just a few decades. Each underscores the importance of widely accepted prerequisites for successful development, such as a focus on education, infrastructure, and exports. But each also shows the potentially pivotal significance of well-planned and implemented government industrialisation strategy and industrial policy interventions. South Korea and Taiwan have provided inspiration for China and other rapidly growing countries.

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