

Case Study 12

A Pioneer in Development Success through Trade: Taiwan

Taiwan is one of the original four “East Asian Tiger” economies whose dramatic economic successes of recent decades influenced the way economists think about development. 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. With a population of about 23 million, Taiwan, which calls itself the Republic of China (ROC), is a mountainous, 36,000-square-kilometer (14,000-square-mile) island off the coast of the Chinese mainland, about the combined size of Maryland and Delaware, or a little less than that of the Netherlands.

Taiwan’s claim to its status as a “development miracle” is strong. The island 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 1965–1980 period, faster than any other nation’s. 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 (nine 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 2000–2010 decade. Like Japan, Taiwan has a below-replacement fertility rate, and its population growth rate has now dropped to less than a quarter of a percent per year. There has been a “hollowing out” of basic manufacturing as plants have moved to (mainland) China in search of lower-wage labor. 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 neighbors.

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 United States, an effective government industrialization 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 American aid—and Taiwan's use of that aid for investment rather than consumption, the work ethic and productive attitudes of the Taiwanese labor 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 defense 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

Consistent with the historical Chinese cultural veneration for education, six years of education became compulsory in Taiwan in 1950. Especially impressive were enrollment 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%.) 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. Today, while 9 years remains a remarkable minimum educational standard for any developing economy, plans are being considered to expand compulsory schooling to 12 years.

Other features have also been in play. Students go to school seven hours a day, five and one-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 United States for general education and Japan for vocational education.

Greater emphasis is placed on general 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 Millennium Development Goal of enrolling all children in six years of elementary school by 2015, the early experience of Taiwan is instructive. Enrollment 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 (1905–1945), 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 program 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 a voluntary program to retire from active military service to build infrastructure, including the technically challenging east-west highway projects, a program 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 program 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 industrialization. Other countries with similar land reform efforts, such as South Korea and Japan, have seen impressive results. The United States had similarly benefited from nineteenth-century programs 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 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, 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 has had considerable

success in absorbing commercial ideas from Japan and the United States, largely due to the diligence of thousands of individual small companies. But government has also played a role, through agencies like the China External Trade Development Council (CETDC) that combed the world, especially the United States, for ideas on how Taiwanese firms could upgrade their technology and adapt to enter industrial markets. The World Bank's Donald Keesing has offered some fascinating insights into the CETDC's operation:

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 United States. The search began with an analysis of the size and origin of U.S. imports, followed by a preliminary study of the price and quality of the more competitive imported and U.S. 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 lead us to perhaps the most complex set of development issues, the roles of state and market in successful development.

Effective Government Industrial Policies A traditional explanation for Taiwan's success is the operation of the 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

export cartels, and provide fiscal incentives for investment in priority sectors and concessional credit for favored industries. The government plays a much less active role today, now that developed-country status has been nearly 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 industrialization in the 1949–1958 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 license. Imports were categorized 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 program is consistent with an emphasis on market incentives. He argues that because it controls quantities of foreign goods entering the local economy, the government can use international prices to discipline the price-setting behavior 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 behavior) are established with solid property rights and not significantly undermined by other policies.

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 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. American 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 labor 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 American 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 U.S. 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 defense strategy, one cannot single out Taiwan. The United States guaranteed Taiwan's defense after President Truman sealed off the island in 1950 in response to the Korean crisis. Other developing countries lacking the natural defenses of an island and as gravely threatened by hostile neighbors have made little development progress in the same period. Military necessity more often represents a diversion of resources needed for development than a productive stimulus.

Conclusion

A combination of factors underlies Taiwan's success. Among them are an emphasis on education, absorption of productive ideas from abroad, extensive infrastructure development, thoroughgoing land reform, very high rates of saving and

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.

Recently, the government of Taiwan has focused on collaborating with the private sector on more advanced research and development as Taiwan moves 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 fiber and semiconductor industries. Thus, continued development of government competence and effectiveness in industrialization 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 center 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 1997–1998 strongly signaled the economy's development and resilience. 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.

Are there any drawbacks to Taiwan's growth? Certainly environmental considerations have taken a backseat to economic growth until very recently. Taipei suffers from exceedingly noxious air pollution, for example. 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 sit 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. 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."

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 economy, as has been seen in the United States and the United Kingdom, has occurred, but investment in the PRC by Taiwanese firms has arguably brought at least as much opportunity as problems. Taiwan was hit significantly by the global recession in 2008 and 2009, before rebounding. Although the caveats qualify Taiwan's success and point to some necessary future directions, they do not negate its impressive accomplishments.

In sum, 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, specialization 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. ■

Sources

- Amsden, Alice H. "Taiwan's economic history: A case of *étatisme* and a challenge to dependency theory." *Modern China* 5 (1979): 341–380.
- . "Taiwan." *World Development* 12 (1984): 627–633.
- Balassa, Bela. "The lessons of East Asian development: An overview." *Economic Development and Cultural Change* 36 (1988): S273–S290.
- Bradford, Colin I. "Trade and structural change: NICs and next-tier NICs as transitional economies." *World Development* 15 (1987): 299–316.
- Chenery, Hollis, Sherman Robinson, and Moses Syrquin. *Industrialization and Growth: A Comparative Study*. New York: Oxford University Press, 1986.
- Chu, Wan-wen. "Export-led growth and import dependence: The case of Taiwan, 1969–1981." *Journal of Development Economics* 28 (1988): 265–276.
- Dahlman, Carl J., and Ousa Sananikone. "Taiwan, China: Policies and institutions for rapid growth," in *Lessons from East Asia*, ed. Danny M. Leipziger. Ann Arbor: University of Michigan Press, 1997.
- Dahlman, Carl J., Bruce Ross-Larson, and Larry E. Westphal. "Managing technical development: Lessons from the newly industrializing countries." *World Development* 15 (1987): 759–775.
- Jacobsson, Steffan. "Technical change and industrial policy: The case of computer numerically controlled lathes in Argentina, Korea and Taiwan." *World Development* 10 (1982): 991–1014.
- Keesing, Donald B. "The four successful exceptions: Official export promotion and support for export marketing in Korea, Hong Kong, Singapore and Taiwan, China." United Nations Development Programme–World Bank Trade Expansion Program Occasional Paper No. 2, 1988.
- Khan, Haider Ali. "Innovation and growth: A Schumpeterian model of innovation applied to Taiwan." *Oxford Development Studies* 30 (2002): 289–306.
- Mathews, John A. "The origins and dynamics of Taiwan's R&D consortia." *Research Policy* 31 (2002): 633–651.
- Pack, Howard, and Larry E. Westphal. "Industrial strategy and technological change: Theory versus reality." *Journal of Development Economics* 22 (1986): 87–128.

- Smith, Stephen C. *Industrial Policy in Developing Countries: Reconsidering the Real Sources of Export-Led Growth*. Washington, D.C.: Economic Policy Institute, 1991.
- Taiwan Yearbook*, 1993 and 2004. Taipei Government Information Office.
- Thorbecke, Erik, and Henry Wan. "Revisiting East (and Southeast) Asia's development model." Paper presented at the Cornell University Conference on Seventy-Five Years of Development, Ithaca, N.Y., May 7–9, 2004.
- Thorbecke, Erik, An-chi Tung, and Henry Wan. "Industrial targeting: Lessons from past errors and successes of Hong Kong and Taiwan." *World Economy* 25 (2002): 1047–1061.
- Wade, Robert. *Governing the Market*. Princeton, N.J.: Princeton University Press, 1991.
- . "The role of government in overcoming market failure: Taiwan, Republic of Korea and Japan," in *Achieving Industrialization in East Asia*, ed. Helen Hughes. New York: Cambridge University Press, 1988.
- . "State intervention in outward-looking development: Neoclassical theory and Taiwanese practice," in *Developmental States in East Asia*, ed. Gordon White. New York: St. Martin's Press, 1988.

Concepts for Review

Absolute advantage	Free-trade area	Prebisch-Singer hypothesis
Autarky	Gains from trade	Price elasticity of demand
Balanced trade	General Agreement on Tariffs and Trade (GATT)	Primary products
Barter transactions	Globalization	Product cycle
Capital account	Growth poles	Product differentiation
Commodity terms of trade	Import substitution	Quota
Common market	Income elasticity of demand	Regional trading bloc
Comparative advantage	Increasing returns	Rent
Current account	Industrialization strategy approach	Returns to scale
Customs union	Industrial policy	Risk
Depreciation (of currency)	Infant industry	Specialization
Devaluation	International commodity agreement	Subsidy
Dual exchange rate (parallel exchange rate)	Inward-looking development policies	Synthetic substitutes
Economic integration	Managed float	Tariff
Economic union	Monopolistic market control	Trade creation
Effective rate of protection	Multifiber Arrangement (MFA)	Trade deficit
Enclave economies	New protectionism	Trade diversion
Exchange control	Nominal rate of protection	Trade liberalization
Export dependence	Nontariff trade barrier	Trade optimists
Export earnings instability	North-South trade models	Trade pessimists
Export promotion	Official exchange rate	Uncertainty
Factor promotion trade theory	Oligopolistic market control	Undervalued exchange rate
Factor price equalization	Outward-looking development policies	Uruguay Round
Foreign-exchange earnings	Overvalued exchange rate	Value added
Free-market exchange rate		Vent-for-surplus theory of international trade
Free trade		Wage-price spiral
		World Trade Organization (WTO)