

Development Thinking 3.0: The Road Ahead

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Development economics appeared after World War II with the intention of helping developing countries industrialize their economies, reduce poverty and narrow their income gaps with advanced countries. However, the developing countries that followed its recommendations to formulate their development policies failed to achieve the intended goals. In a paper on *New Structural Economics: A Framework for Rethinking Development* published in the most recent issue of the *World Bank Research Observer*, I took up the challenge of synthesizing half a century of various approaches proposed by development economics, and suggested a way forward. I am very fortunate and honored that my paper was critically discussed in the same issue of the journal by Anne Krueger, Dani Rodrik, and Joseph Stiglitz, who are among the best minds and most respected experts in the profession—two of them happen to be my predecessors as Chief Economist at the World Bank.

I basically argue that early researchers who launched development economics as a sub-discipline of modern economics focused on market failures and advocated old structuralist, state-led development policies. These policies did not properly account for comparative advantage and failed to create competitive industries. In reaction, a second wave of development thinking inspired by neo-liberalism focused on government failures and recommended Washington Consensus-type of policies that also failed to deliver sustainable, inclusive growth and poverty reduction in developing countries.

Looking at the economic history of all successful economies since the Industrial Revolution, I have suggested a general framework for engaging in a third phase of development thinking that focuses on structural change, driven by changes in endowment structure and comparative advantages. That framework, encapsulated in the idea of New Structural Economics (NSE), would help the state play a proactive facilitating role in structural transformation. It would also require policy makers to be more disciplined in designing and implementing strategies around the function of the market.

As could be expected, Anne Krueger, Joseph Stiglitz, Dani Rodrik, and I all agree on the importance and need to reignite the debate on development recipes—especially in light of the current global financial and economic crisis. But we also have subtle and important differences of ideas on the true lessons from economic history and economic theory.

My biggest divergence of views is with Anne Krueger who questions whether the fundamental technological changes and industrial upgrading, which I consider to be at the heart of, and crucial to, the mechanics of growth, must take place early in the economic development. She contends that “only later in the development process does upgrading become a major part of industrial growth once there has been significant absorption of rural labor—much of it happening in existing firms in response to rising real wages, lower capital costs, and learning through exposure to the international market” (p. 223). My view of economic development is slightly different: The migration of unskilled rural labor to unskilled labor-intensive industries is a form of

structural change that may not occur spontaneously. I believe that proactive action must be taken by policy makers to manage the demand for labor: Indeed it is necessary for the government to facilitate the growth of existing and emerging unskilled labor-intensive industries along the line argued in the NSE. Without such action, many rural out-migrants will be unemployed as has been the case in Africa, Latin America and many other developing countries. On the supply side of the labor market, the government also needs to provide basic education and training to enhance the rural out-migrants' ability to adapt to the new working environment and requirements in the industrial sector. Moreover, successful catching-up countries may start their upgrading process long before their rural surplus labor is exhausted. One example is China. With 39.1 percent of China's labor force still working in the primary sector in 2009, that issue is hotly debated in academic circles: some economists wonder whether China has reached the so-called Lewis turning point and depleted its labor surplus. However, the quick and continuous upgrading of China's industries is still going on, exemplified by the quality and varieties of China's exports to the U.S. market. A similar situation was observed in 1980 when 34 percent of Korea's labor force was still in agriculture. However, Korea had already entered in not only industries such as consumer electronics, but also shipbuilding, automaking, and memory chips by that time.

I fully agree with Anne that agricultural productivity needs to be improved in parallel with industrialization (p. 223). But again, in order to improve agricultural productivity and increase farm income, the government must play a proactive role in making new agricultural technology available, providing extension services, improving irrigation, and expanding market channels. The government also needs to create conditions to facilitate the diversification of agriculture into new, higher -value-added cash crops.

While Anne agrees that "the market should be used to determine comparative advantage, and that governments have responsibilities for insuring an appropriate incentive framework and provision of infrastructure, both hard and soft," she objects, most notably, to government intervention aiming at fostering the development of specific industries and doubts "why it would be preferable to allocate scarce capital so that some activities have excellent infrastructure while others must manage with seriously deficient infrastructure" (p. 224).

In fact, identification of new industries and prioritization of government's limited resources to facilitate the development of those industries are both essential for successful growth strategies in developing countries. Why? Because the infrastructure improvements required are often industry specific. One simply has to look at the list of recent success stories in African countries to understand the necessity for identification: textiles in Mauritius, apparel in Lesotho, cotton in Burkina Faso, cut flowers in Ethiopia, mango in Mali and gorilla tourism in Rwanda all required that governments provide *different* types of infrastructure. The refrigeration facilities needed at the airport and regular flights to ship Ethiopia's cut flowers to the auctions in Europe are obviously quite different from the improvements required at the port facilities for textile exports in Mauritius. Similarly, the type of infrastructure needed for the garment industry in Lesotho is distinct from the one needed for mango production and export in Mali or for attracting gorilla tourism in Rwanda. Because fiscal resources and implementation capacity are limited, the government in each of those countries had to prioritize and decide which particular infrastructure they should improve or where to optimally locate the public services to make those success stories happen. Deng Xiaoping explained that pragmatic wisdom at the beginning of China's

transition to a market economy when he advocated allowing a few regions and people get rich first so as to achieve common prosperity for all people in the nation. The dynamic growth in those regions and industries would increase fiscal revenues, giving the government more resources to improve infrastructure for other regions in the nation later.

Identification of new sectors or lines of business and prioritization of infrastructure investment are also necessary because to be competitive in the globalized world, a new industry not only must align with the country's comparative advantage so that its factor costs of production can be at the lowest possible level but it also must have the lowest possible transaction-related costs. Why? Suppose a country's infrastructure and business environment are good and industrial upgrading and diversification happen spontaneously. Without government coordination, firms may enter into too many different industries that are all consistent with the country's comparative advantage. As a result, most industries may not form clusters that are sufficiently large and will not be competitive in the domestic and international markets. A few clusters may emerge eventually after many failures. Such a "trial and error" process is likely to be long and costly, reducing the individual firms' expected returns and incentives to upgrade or diversify to new industries, and slowing down the country's economic development. It is therefore imperative for a facilitating state in a developing country to identify and select new industries that are consistent with comparative advantage, use its limited resources to improve infrastructure for a limited number of carefully selected industries, provide adequate incentives for first movers, and coordinate private firms' related investments in those industries so that clusters can be formed successfully and quickly. Whether the government plays the identification and facilitation role may explain why some developing countries can grow at 8 percent or more for several decades while most others fail to have a similar performance.

I agree with Anne that cost-benefit analysis is indeed an excellent tool that should be used for evaluating the potential merits of every single infrastructure *project* (p. 223). Such an analysis sheds light on the validity of competing alternatives and can help make better public investment decisions. It forces policy makers to provide quantitative data to back up qualitative arguments and is therefore an invaluable technique for increasing social welfare. But it is microeconomic by nature. Without the identification of potentially successful industries and their likely location and needed infrastructure, policy makers are confronted with too many possible feasible projects that all need careful cost-benefit analysis. Moreover, for every public investment project, there are many benefits and costs that are intangible and therefore difficult to value. It is also well known that the results of that analysis can be very sensitive to the choice of the discount rate, and that the information used to determine future benefits and costs is limited by current knowledge.

In her discussion of infant industries, Anne observes that firms that produce and export unskilled-labor-intensive goods have usually learned from the opportunities arising from the dynamics of international market. She notes that "learning does not seem to have been a major issue for firms in South Korea, Taiwan and elsewhere" (p. 224). Learning may not be an issue if it is a by-product of the firms' business activities, but if it is not such a spontaneous element of their activities, firms may not have the incentives to invest in it. A low-income country should have comparative advantage in the production of many unskilled, labor-intensive manufacturing products that it still imports. Such product market information should be available freely to any entrepreneur in the country. But production information about where to buy the equipment and

intermediate inputs to manufacture these imported products, and knowledge about how to operate a firm to produce them, are relatively costly to obtain for most entrepreneurs in low-income countries. Furthermore, the coordination of related investment in infrastructure, access to finance for investment and operation, or the availability of foreign exchange for importing equipment for developing the new industry may still be serious issues for private firms even if learning about product market and production information is not a problem.

Anne's skepticism of all industry-specific interventions—a skepticism widely shared in the mainstream economic profession and Washington-based development institutions—results from the pervasive failures of government's attempts to pick winners in the past. Those failures were mostly due to the misguided attempts by many governments to develop industries that were inconsistent with their countries' comparative advantages. Firms in those industries were not viable in open, competitive markets, and their investment and survival depended on heavy government protection, large subsidies, and direct resource allocations through measures such as monopoly rent, high tariffs, quota restrictions, and subsidized credits. The large rents embedded in those measures created many distortions and easily became the targets of political capture. All this created difficult governance problems. The likelihood of these problems arising is much reduced when the government facilitates the development of new industries that are consistent with the country's changing comparative advantage determined by the change in its endowment structure, as suggested in the NSE.

Anne also worries that the identification of any new industry for upgrading “would inevitably favor larger, established firms and hence encounter the same sorts of problems as did the older import-substitution strategy” (pp. 224-225). Her worry is valid for the old structuralist import-substitution strategy because the industries favored went against the comparative advantages of the countries that adopted it. Such industries were too capital intensive and only a few rich and politically well-connected firms could enter them. However, if the identified new industries are consistent with the country's comparative advantages, capital intensive or not, many firms will be able to enter and contest the dominance of large firms, as exemplified by the auto industry in Japan in the 1960s, the textile industry in Mauritius and electronics in Taiwan, China, in the 1970s, and the garment industry in Bangladesh and salmon-farming in Chile in the 1980s.

The type of government incentives for the first movers advocated in the NSE is limited to compensating for the externalities generated by the first movers rather than supporting nonviable firms, as in the case of old structuralist import-substitution strategy. Therefore, tax holidays for first movers for a few years, and preferential access to credit and foreign exchange (in countries where lack of access is a binding constraint) would be enough.

Finally, Anne questions the uncertainty surrounding the scope, depth and length of government protection and points out the risk of political capture and rent-seeking in situations where a government adopts a dual-track approach during its transition from a heavily distorted economy to a well-functioning market economy. She argues that “a major challenge for liberalizing reform is for it to be credible that the altered policies are not reversible. Lin's prescription would greatly increase the challenge of creating credibility, and a slower transition would be a longer period during which growth was slow and political pressures opposing liberalization at all were mounting” (p. 225). The credibility argument was used to support the shock therapy in the

transitions of East Europe and former Soviet Union in the early 1990s. However, even though those firms were privatized, governments in transition economies were very often forced to provide other disguised and less efficient forms of subsidies and protection to ward off large unemployment and subsequent social and political instability. As a result, most transition economies encountered the awkward situation of “shock without therapy.” Instead of a “J-curve” recovery as promised by the proponents of shock therapy, those economies encountered an “L-curve” growth path (a prolonged sluggish growth after a sharp decline in the GDP) during their transition. By contrast, good performers such as China, Vietnam, Laos, Slovenia, and Uzbekistan have reformed their distorted economies by adopting a more pragmatic, dual-track approach, which consists of progressively phasing out government support to “nonviable” firms in priority sectors and at the same time liberalizing the entry of formerly repressed private enterprises, joint ventures, and foreign direct investment in sectors aligned with their comparative advantages. The lesson is clear: for any developing country confronted with severe distortions and poor growth performance, the best way to gain confidence and credibility in its liberalization reforms is to achieve stability and dynamic growth in the transition process.

The comments by Joe Stiglitz and Dani Rodrik on my paper reveal more differences of emphasis and style than divergence on substance. I agree with Dani’s assessment that our difference “is mainly methodological—and perhaps even just terminological—and may have little practical import” (p. 229). However, there are a few differences that are worthwhile highlighting.

Beyond the traditional need for regulation, Joe sees a catalytic role for governments “in promoting entrepreneurship, providing the social and physical infrastructure, ensuring access to education and finance, and supporting technology and innovation” (p. 231). He strongly challenges the belief in the efficiency and stability of unfettered markets, and stresses the need for advances in technology as a key condition for increases in per capita income. Consequently, he favors public action for the creation of a “learning society” (p. 231).

I agree with Joe on the importance of learning. However, the content and mechanism of learning may be different for countries at different levels of development. Developing countries that are still at the early phase of their development generally do not have the necessary human and physical capital to leapfrog into capital-intensive, high-tech industries. The more effective route for their learning and development is to exploit the advantages of backwardness and upgrade and diversify into new industries according to the changing comparative advantages determined by the changes in their endowment structure. The subsequent dynamics of growth, accumulation of human and physical capital, and industrial and technological upgrading eventually open up possibilities to enter and master capital- and knowledge-intensive industries at the global frontier. The need to generate new knowledge through indigenous innovations in an economy increases with its economic development and the narrowing of the knowledge gap (the distance to the global technology/industrial frontier). Therefore, the learning and the enhancement of human capital should be commensurate with the level of economic development. Otherwise the attempt to create a “learning society” by increasing education alone may not correspond to the emergence of new, dynamic sectors consistent with the comparative advantage reflected in its endowment structure. Should this happen, the educated young people will not find suitable employment opportunities, causing a waste of scarce human and educational resources and, most likely, social tensions, as has happened in North African and many other developing countries.

Joe points out that “some of the most important elements of comparative advantage are endogenous” and contends that “Switzerland’s comparative advantage in watch-making has little to do with its geography” (p. 232). The fact is that watch-making was a new industry in the 16th century. Switzerland goldsmiths started making watches in 1541 and formed the first watch-makers’ guild in 1601 (<http://www.fhs.ch/en/history.php>). According to Maddison’s estimations, Switzerland’s per capita income in 1600 was 750 measured in 1990’s international dollars, which was 77 percent of Britain’s in the same year. Therefore, Switzerland was one of the “high-income” countries in the world at that time. To continue its income growth, it had to upgrade its industries to some new higher-value-added industries.

While Switzerland’s comparative advantage in watch-making has little to do with its geography, as Joe pointed out, geography may be a crucial reason for its leadership in this industry since the 16th century. Watches are small, light, and high value added, with potential for continuous technology improvements. Such an industry is particularly suitable for a landlocked country like Switzerland. This may explain why Switzerland has kept its watch-making industry by maintaining technology leadership through continuous innovations since the 16th century but gave up other industries, such as garments, textiles, and footwear, which flourished in Switzerland in its early history.

Joe may be a bit too optimistic when he suggests that full capital mobility in a globalized world allows countries to free themselves from patterns dictated by endowments, as conventionally defined. He postulates that “with fully mobile capital, outside of agriculture, natural resource endowments need not provide the basis for explaining patterns of production and specialization” (p. 232). However, short-term capital flows are too volatile to be a reliable source for long-term productive investments in developing countries. We observed that during the East Asian financial crisis of the late 1990s. By contrast, foreign direct investments are more reliable because they are motivated by the search for profits. They mostly go to tradable sectors or production activities which are consistent with a host country’s comparative advantage so as to use that location as an export base, or to enter the host country’s domestic market—except when they are driven by occasional cases of privatization of large non-tradable sectors such as utilities and telecommunication. Because of his optimism about the mobility of capital, Joe highlights the importance of knowledge and entrepreneurship endowment. The importance of knowledge and entrepreneurship cannot be overemphasized. They are indeed driving forces for industrial upgrading and diversification in a dynamically growing economy. Nevertheless, as discussed above, the type of new knowledge that is useful for a country’s development depends on the needs of new industries that align with the country’s comparative advantage. An entrepreneur’s investment in an open, competitive market is unlikely to be successful if he or she invests in industries that do not align with the country’s comparative advantage.

Joe proposes the undervaluation of the exchange rate as a broad-based policy for encouraging the upgrading of tradable industries (p. 233). This is a delicate issue: it may help exports but it always makes imports of equipment more expensive, which is an obstacle for industrial upgrading and diversification (because firms need new capital equipment from abroad to upgrade or diversify into new industries). Therefore such a policy may help existing industries’ exports but may not be conducive to long-term growth. Successful developing countries seem to have

adopted a policy of undervaluation of real exchange rate if the Balassa-Samuelson theorem is used as a reference. However, the explanation may be the following: these countries typically converge from a dual economy with large surplus labor to a modern economy with a unified national labor market. At some point that theorem does not apply: before the depletion of surplus labor the wage rate in the tradable and non-tradable sectors will not increase, which is a required mechanism for real appreciation in the theorem. What then looks like undervaluation may actually be an equilibrium exchange rate.

Dani's quibble with my approach seems to be related to his assumption that coordination and externality issues only exist in situations where markets send entrepreneurs the wrong signals. He therefore suggests that I may be arguing "both for and against comparative advantage" (p. 228). This deserves a clarification: Comparative advantage is determined by factor endowment. If an industry is consistent with a country's comparative advantage, the factor cost of production will be lower than otherwise. But for that industry to be competitive in its domestic and international markets, transaction-related costs should also be reduced to their lowest possible level. Yet, individual firms cannot internalize the reduction of many of the transaction-related costs arising from issues such as provision of infrastructure, logistics, finance, educated labor and so forth. Without government coordination and facilitation to reduce such costs and compensate for the externalities generated by the first mover, these industries are likely to simply remain as the *latent* comparative advantage of the economy. An illustration of this problem is the fact that low-income countries typically have comparative advantages in most unskilled, labor-intensive industries but few of them are able to be competitive in those industries—precisely because governments fail to effectively play their facilitating role. Therefore, the answer to Dani's objection lies in the distinction between a country's *latent* comparative advantage, which determines the factor costs of production, and its *actual* comparative advantage (or, in Michael Porter's term, competitive advantage), which requires in addition the reduction of transaction-related costs. My recommendation that governments step into the economic process and address market failures should therefore not be misunderstood as an attempt to defy an economy's "natural" or "inexorable" comparative advantage as revealed in market prices but as a way of opening the black box of business competitiveness, converting an economy's potential into reality, and igniting the march of domestic firms toward market success.

The differences between Dani's and my understanding of the government's role arise to a large extent from our diverging interpretations of experiences in successful countries such as Japan, Korea and China. He regards the successful catching up in Japan and the Republic of Korea as evidence for the need to defy a country's comparative advantage (p. 228). When Japan embarked upon its industrialization path in the early years of the Meiji period (1868–1912), it was an agrarian society in which farming, forestry and fishing employed more than 70 percent of the working population and represented over 60 percent of national output. Throughout the Meiji, Taisho (1912–26) and pre-war Showa (1926–36) periods, the top exports were raw silk yarn, tea, and marine products. The main market for these commodities was the United States. Historians remind us that along with the opening up of Japanese ports, demand for these primary commodities quickly ballooned and domestic producers greatly profited from it. Silk in particular brought wealth to rural areas and generated much coveted foreign exchange. Also, mining, which had continued from the previous Edo Period, was largely requisitioned by the government and later sold off to the private sector to become one of Japan's principal industries.

The success of these sectors allowed Japan's per capita income to increase 40 percent from 737 in 1990 Geary-Khamis PPP adjusted dollars in 1870 to 1,012 in 1890 and again to 2,026 at the onset of Great Depression in 1929 (Maddison 2010). From the point of view of NSE, that success contributed to capital accumulation and changed Japan's endowment structure and comparative advantage. In the words of Japanese historian Kenichi Ohno, "the industrialization of the Meiji Period was a *light* industrial revolution, which made its way from importing to domestic production and then onto exporting. Within this transition, cotton production played a central role. The iron and steel, shipbuilding and chemical industries, as well as the manufacture of electrical machinery and appliances were in their infancy and the country was still in the process of learning by imitating the West... By late Meiji, private-sector production in the areas of shipbuilding, railway carriages and machine instruments had slowly emerged."¹ Japan's industrialization proceeded in a flying-geese pattern, moving step –by step from simple, labor-intensive manufacturing goods to more capital- and technology-intensive manufacturing goods (Akamatsu 1962).

Korea also adopted a realistic approach to industrial upgrading and adjusted its strategy to enter industries that were consistent with its latent (and evolving) comparative advantage. In the 1960s Korea developed and exported labor-intensive products such as garments, plywood, and wigs. With capital accumulation and a change in its endowment structure due to success, Korea upgraded to more capital-intensive sectors such as the automotive sector. But at the initial stage, domestic manufacturers concentrated mostly on assembly of imported parts, which was labor-intensive and in line with their comparative advantage at the time. Similarly, in electronics, the focus was initially on household appliances, such as TVs, washing machines and refrigerators before the country moved to the production of memory chips, the least technologically complex segment of the information industry. Korea's technological ascent has been rapid, at a pace commensurate to changes in underlying comparative advantage. Such changes reflected rapid accumulation of physical and human capital resulting from the dynamic growth, which could only occur because the country's main industrial sectors remained consistent with its existing comparative advantage (Lin and Chang 2009).

Similarly, Dani's observation that China has been defying its comparative advantage successfully with its export bundle resembling that of a country between three and six times richer neglects the fact that these are mostly processed products. China only provides value-added in labor-intensive assembly and accessories. Empirical research (Wang and Wei 2010) shows that China's exports are consistent with China's comparative advantage.

Dani also questions the differences between my recommendation for gradual trade liberalization and the old structuralist policies. The latter approach advocated protection and subsidies to build new industries that were not aligned with comparative advantage, whereas the dual-track, gradual approach for trade liberalization that I recommend advises governments in transition economies to provide temporary protection or subsidies to old industries that were not viable in an open, competitive market but were established under the misguided old structuralist strategy. The pragmatic dual-track approach helps a transition economy avoid unnecessary and costly economic and social disruption, and eventually leads to a system of market-based prices and resource allocation as explained in my response to Anne's comments.

Summing up, it appears that Anne's questions about the practicality of my framework arise mostly from interrogations on how to identify new industries that are consistent with a country's latent comparative advantage, and how to administer the coordination and incentives for the first movers (p. 225). Joe's and Dani's advocacy of broad-based interventions such as undervalued real exchange rates to support the trade sector but reluctance to embrace the idea of sector-specific policies are also related to the puzzle about how to identify industries aligned with latent comparative advantage. Those questions are addressed in a companion paper entitled "Growth Identification and Facilitation," co-authored with Célestin Monga and published in *Development Policy Review*. Based on economic analysis and historical experiences, the growth identification and facilitation framework that we propose suggests that policy makers identify dynamic tradable industries in fast growing countries with similar endowment structure, and with a *per capita* income about double their own. If domestic private firms in these sectors are already present, policy makers should identify and remove constraints on those firms' technological upgrading or on entry by other firms. In industries where no domestic firms are present, policy makers could aim to attract foreign direct investment from the countries being emulated or organize programs for incubating new firms. The government should also pay attention to the development by private enterprises of new and competitive products, and support the scaling up of successful private-sector innovations in new industries. In countries with a poor business environment, special economic zones or industrial parks can facilitate firm entry, foreign direct investment, and the formation of industrial clusters. Finally, the government might help pioneering firms in the new industries by offering tax incentives for a limited period, co-financing investments, or providing access to land or foreign exchange.

I am grateful to Anne, Joe, Dani, and many others who have provided comments and constructive criticism of my paper. Despite our differences, there seems to be an emerging consensus on the need to reconcile lessons from the first two major waves of development thinking (structuralism and neo-liberalism) into a new synthesis that recognizes and defines the proper roles of state and markets. The road ahead towards that third wave (which might be termed "Development Thinking 3.0") will obviously involve healthy and useful intellectual disagreements. Because, as Confucius once said, "Real knowledge is to know the extent of one's ignorance."

Notes

1. Translated excerpts from the book *Tojokoku no Globalization: Jiritsuteki Hatten wa Kanoka* (Globalization of Developing Countries: Is Autonomous Development Possible?) by Toyo Keizai Shimposha (2000), quoted by Japan's National Graduate Institute for Policy Studies (GRIPS). See http://www.grips.ac.jp/forum-e/pdf_e01/eastasia/ch5.pdf.

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