Policy lessons for 21st century industrializers

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Industrial development is not the only possible route to a developed country standard of living, but it is a well-proven one. It is for this reason that industrial development remains a high policy priority of governments in the developing world. While less vital to maintaining high incomes in developed countries, industry remains an important source of well-paying jobs, especially for those workers with less than a college education.

The past several decades have witnessed a major restructuring of the global economy, one in which more and more industrial output and employment is now located in emerging developing countries, while the developed countries have become ever more service-oriented economies. Globalization through increased trade and investment flows is driving this restructuring, along with technological and associated organizational change.

Industrialization is proving a potent force for economic growth in countries of Asia, most recently China and India. In the former at least, it has also been an important contributor to poverty reduction. In China, vast numbers of people have left agriculture to work in factories, as – in the past – did rural populations in the now industrialized world. Given its very different demographic profile, with many more new labour force entrants expected over coming decades, India faces an even bigger challenge than China to create enough productive jobs, and strong industrial development will have to be an important part of the job-creation process.

Between them, China and India will occupy a huge industrial space in coming years, and those on their periphery will most likely reap some benefits of proximity which may offset in part the effects of heightened competition. On the other hand, developing countries farther afield and with less abundant labour reserves may struggle to find a competitive niche in global markets, especially for labour-intensive manufactures.

At the same time, there are new opportunities which some such countries can hope to seize. One set of opportunities is created precisely by the rapid economic growth of China, India and other so-called emerging economies, with the associated demand for imports of raw materials and semi-processed goods to feed their factories and to satisfy changing consumption patterns associated with rising incomes. Africa, Latin America and the Middle East have already enjoyed benefits from this new commodities

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boom. Another set of opportunities is being created by changing consumption and production patterns in developed countries, for example as they struggle to lower their emissions of greenhouse gases to meet international commitments. Biofuels are one example of a sector with significant potential from this cause, and Brazil is well positioned to gain in the first instance, while other major sugar, soybean and palm oil producers could also benefit. Also, consumer willingness to pay in developed countries for "fair trade", "organic", certified timber and "sustainable" products has created new and fast-growing markets. Coffee growers, for example, in Africa, Latin America and Asia are sharing in the gains. Finally, there are opportunities which have been opened up by new technologies and reduced costs of transport. For instance, the production of fresh fruits and flowers in tropical climates and in southern hemisphere temperate climates to supply markets in Northern hemisphere developed countries is an example where reduced transport costs have been decisive. Also crucial has been the capacity developed by some countries in the tropics and the southern hemisphere to provide the supporting infrastructure and services, from irradiation treatment to uninterrupted cold chains to controlled temperature containers.

In the case of services, lower communication costs are revolutionizing the way that different types of service industries function, with many functions not dependent on face-to-face interaction being sourced remotely where costs are competitive. India has thus far been the principal beneficiary of the growing 'trade in tasks', but other countries have also shared in the gains – notably the Philippines. Lower travel costs have created mass tourism on an unprecedented scale, which opens up significant opportunities for well-endowed countries – including for ecotourism – while at the same time placing enormous stresses on local environments and cultures in some popular tourism destinations. African countries as well as others have the potential to reap significant rewards from nature-based tourism, but the capacity to maintain destinations in their natural states while providing the sort of infrastructure and services which wealthy tourists expect is a non-trivial skills set which needs to be built over time.

As suggested by the range of activities and sectors just enumerated (and this is only a partial list), this volume seeks to broaden the terms of the discussion on industrial development. The traditional 'metal-basher' perspective is no less antiquated than one which fixates on so-called 'high-tech' sectors like electronics as the engine of industrial transformation.

Technology and its mastery are undoubtedly crucial to successful economic development, but it is clear from the cases discussed in this volume that technology is not the monopoly of industry. Nor is technology development the alpha and the omega of successful innovation. Indeed, especially at an early stage of development, there may be other forms of innovation which are more important – e.g., simply being able to identify and seize profitable new product or geographic market opportunities, to deliver goods to market

more efficiently, or to serve a new class of customers through improved marketing.

The biggest challenge facing national governments in low-income developing countries is to discover how and where their countries' economies can best compete in this global marketplace. The next biggest challenge is how to do so in a sustainable manner, ensuring that breakneck growth does not contain the seeds of its own undoing.

A major theme of this volume has been the importance of policies, including macroeconomic and exchange rate policies as well as industrial and technology policies, trade and foreign investment policies, and policies to promote workforce education and training, to successful industrial development.

Several lessons which emerge from the preceding chapters deserve emphasis.

First, there are many possible patterns of specialization open to any given country, and a process of "self-discovery" (Hausmann and Rodrik) is important to finding which one yields the biggest dynamic gains. Thus, policies which promote experimentation and exploration of new markets are vital – which fits within a broad, Schumpeterian view of innovation as creating new value-generating activities. Competition and labour market policies are part of the story, as firms need to be able to reorganize easily in the event of failure and entrepreneurs need to be able to risk multiple failures in pursuit of a winning formula. Financing to support such risk taking is another critical ingredient, and where private venture capital markets are underdeveloped there may be a role for government as venture capitalist or backer of venture capitalists.

Second, for many low-income developing countries, just getting and staying on the first rung of the ladder of industrial development is a daunting task. For countries like Bangladesh, Cambodia, and Sri Lanka, textiles and clothing remain the core of their industrial sectors. Technological innovation per se and the ability to exploit it would seem the least of their worries. They are struggling to survive in an increasingly competitive global market with countries having strong competitive advantages which have been unbound from quota restrictions (or will be in a matter of a few years). For those countries, innovation is mostly about finding a viable strategy for facing such competition. Product niche marketing is one (Sri Lanka); branding as a 'socially responsible' production location is another (Cambodia); achieving economies through backward integration could be a third. For others countries, however, it may already be too late to save this industry, and innovation will mean embarking on a new search for potential areas of comparative advantage. International cooperation is needed to assist those countries with the difficult adjustments they face and to shoulder a share of the adjustment costs. A question of great importance to policy makers in such countries is how to organize and conduct that search in a way which maximizes

the likelihood of success or, put differently, yields a winner with the lowest costs in time and resources.

For many developing countries, external orientation and openness to foreign direct investment can be crucial to fostering rapid search and cost discovery in new products and sectors. If foreign investors are willing to risk their capital in a sector which is not ring fenced by protectionist measures, this can provide useful information about which sector(s) hold promise of becoming internationally competitive. The policy challenge for governments is then one of balancing the need to attract foreign investment with the need to ensure meaningful linkages and spillovers to the local economy and local enterprises. Large countries with diversified domestic economies and vast domestic market potential are better positioned than small, specialized economies to encourage FDI with strong domestic linkages. Thus, a country like China is apt to be more effective in negotiating favourable technology transfer agreements as part of FDI projects than many smaller countries. Mineral extraction and processing economies are often characterized by FDI investment enclaves. While domestic linkages may in such cases remain weak, the use of government revenues from the minerals sector to invest in human capital and infrastructure with a view to long-term economic diversification can provide insurance against eventual stagnation once resources are depleted.

Third, knowledge and technology intensity is rising across most economic activities, and not only in industry (manufacturing plus mineral and materials processing). Modern agriculture is also knowledge-intensive, as the Chilean experience in developing high value fresh fruit and fish exports suggests. Moreover, new service activities (e.g., business process outsourcing) have been spawned by the development of information and communications technologies and existing ones have been revolutionized (witness telecommunications and finance). For this reason, policies that strengthen the knowledge base of an economy take on ever greater importance. This includes above all investments in education and training institutions and programmes, but it extends to other institutions which support knowledge creation, acquisition and application, like R&D laboratories, standards, testing and certification bodies, and (again) venture capital and other entrepreneurial financing. In recent years, some developing countries have become increasingly attractive as locations for R&D facilities of multinational corporations. While an existing human capital and technological base is apt to be a precondition for attracting such investment, the presence of foreign R&D facilities may generate a number of positive spillover effects for domestic technological capabilities – e.g., providing stronger incentives for pursuing advanced education in science and engineering, attracting foreign-educated scientists and engineers back to their home countries, and training both research scientists and research managers who may be able to set up and/or upgrade the quality and productivity of domestic R&D laboratories.

Fourth, small- and medium-sized enterprises can be important sources of innovation, especially radical innovation. An industrial environment which encourages and supports start-up companies is more likely to breed dynamism and experimentation.

In many developing countries, small- and medium-sized enterprises dominate the industrial structure. Historically, many successful enterprises have started as SMEs, even the Microsofts and Intels of the world. In some countries, however, the regulatory regime and investment climate is strongly biased against SMEs and inhospitable to their growth. Weak capital markets and cautious banks may starve SMEs of investment capital needed to expand beyond a rate sustainable from retained earnings and informal borrowing. Large firms may be subjected to costly regulations and controls on their operations which discourage expansion. While policies should support a dynamic SME sector from which eventual winners will emerge, they should not discourage graduation from the SME league.

While high costs of R&D can pose a formidable barrier to entry to new firms in economies operating on the technological frontier, in developing countries operating well behind the frontier the barriers to innovation are likely to be less steep. For, in this context innovation does not depend crucially on state-of-the-art R&D. What can be highly problematic in such countries are the coordination failures which make it hard for a pioneer in one area to succeed where key supporting activities, industries and infrastructures are not in place.

What sorts of government policies or other measures can be effective in remedying such coordination failures? One lesson which emerges from this volume is the importance of a formalized consultative mechanism whereby government agencies and departments can interact with business people and better understand their needs and problems. While business surveys generally yield predictable general complaints about high taxes, bureaucratic red tape, corruption, bad roads and port delays, more intensive consultations between government and industry can provide guidance on concrete, industry-specific obstacles and constraints. If, for example, it happens that the unavailability of a low-cost local supply of a particular component is a binding constraint on developing an otherwise promising component-using sector, this may signal to government the need to consider offering targeted incentives to the first investor(s) in that component manufacture. To work effectively, such government-business consultations must be accompanied by policy flexibility, i.e., a willingness to learn by doing and to adjust policies accordingly.

Another way by which governments – e.g., in the Asian newly industrialized countries, or NICs – have dealt with coordination externalities is by resorting on public investment, including through state-owned enterprises, to fill certain production gaps deemed critical to supporting priority downstream sectors but too risky and/or capital-intensive to attract private

investors (e.g., steel, oil and gas, petrochemicals in some countries in the early days of industrial development).

Another possible barrier to innovation and entrepreneurial risk taking in developing countries is the limited private appropriability of the rewards to pioneering a profitable new industry or activity. Since innovation in this case involves discovering an area where local producers can be internationally competitive, not developing patentable technology, intellectual property rights protection offers little incentive. Where domestic market protection combined with strong export incentives might once have helped resolve this problem, changes to international trade rules have made this approach more difficult to pursue. In the current competitive environment, an industry pioneer can expect to reap rewards from innovation only by continuing to innovate, staying ahead of the competition, either by improving product quality or other characteristics, or by moving on to new and more profitable sectors once a particular sector becomes overcrowded. Thus, government policy needs more than ever to encourage firms to build technological and organizational capabilities for continuous adaptation.

While the most successful recent examples of the effective employment of industrial policies are the Asian NICs, the international rules of the game have changed since they industrialized. Thus, there is limited scope for late industrializers today to seek to emulate their policies, even assuming they had the capacity to do so. Today, the main forms of selectivity available to government industrial policy makers pertain to skill formation, technology support, innovation financing, FDI promotion and targeting, infrastructure development (including for IT) and all types of general subsidies which do not affect trade performance (Lall, 2003). How far today's late industrializers are constrained by these new rules of the game remains a point of contention, with Lall suggesting the constraints may be binding and Rodrik taking a contrary view (Rodrik, 2006). Lall's list contains a number of areas of intervention critical in a globalized knowledge economy. Lall himself suggests that the constraints on policy space may encourage more focused and effective policy. That will not simply happen on its own, however, so Lall stresses the need for the international community – and developed countries in particular – to provide support to developing country governments in building capacity to design and manage effective industrial promotion policies.

Until now, the focus has been on policies to promote industrial development, to ensure that such development is sustainable in an economic sense. The other big challenge noted above is how governments can ensure that industrial development is environmentally and socially sustainable. The history of industrialization in the West, in the former Soviet Union, in Japan and in the NICs tells a cautionary tale about the adverse environmental effects of rapid and weakly regulated industrialization. China today faces many of those same challenges of coping with heavy industry-induced envi-

ronmental pressures, and India and other 21st century industrializers can be expected to do likewise. It is certainly true that environmental problems in these late industrializers could be far worse if their industrialization were based on 1950s or 1960s technologies rather than, say, 1990s or new millennium technologies. Still, the sheer scale of industrial production concentrated in a given geographic area can be so great as to offset in large measure the environmental benefits of cleaner, more efficient technologies.

There is no area in which the case for vigorous government policy intervention is less incontrovertible than in that of environmental regulation. Still, in many countries there remains a hesitancy about too strict regulation of industrial pollution out of concern for raising costs and reducing competitiveness. Thus, much of the discussion of feasible policies and measures has focused on those which would yield potential financial rewards to enterprises and thus generate the least resistance. Policies and measures to encourage energy efficiency and reduce materials wastage fall into this category. One of the findings to emerge from the chapter on energy and material efficiency is that the financial and economic rewards to improvements in the latter are largely attributable to improvements in the former. That is to say, increased use of recycled materials often yields significant energy savings by averting the need for energy-intensive primary materials processing. Thus, policies aimed at encouraging recycling are, in a sense, energy-efficiency policies.

The social dimension of industrial development is multi-faceted. The improvements which rapid, labour-intensive industrial development have made possible in the living standards of low-skilled workers, and in the social and economic status of women through new employment opportunities, are major contributions to social development. On the other hand, rapid structural transformation in an economy, from agricultural to industrial, from largely rural to increasingly urban, brings major social dislocations which can have both individual and social costs. Newly arrived rural migrants, possibly uninformed about workers' rights, may be especially susceptible to mistreatment, and even well-informed ones may lack attractive alternatives. Labour law protections exist in most countries, but their enforcement – as with environmental regulations – is often discretionary and partial. It is in this context that multinational corporations have felt compelled to extend their codes of corporate social responsibility, developed in response to pressures from domestic stakeholders, to their overseas subsidiaries and supply chains. Developing country governments have an interest in ensuring that their domestic enterprises – including their SMEs – are not disadvantaged in global markets by new CSR codes. Thus, where this is not already done, they may well choose to encourage if not require foreign investors and buyers producing and/or sourcing in their countries to provide technical assistance to domestic enterprises in complying with these codes.

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