Emerging economies - Arrested development

The model of development through industrialisation is on its way out

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THIRTY-FIVE YEARS ago Shenzhen was a tiny fishing village just over the river from British Hong Kong. Its inhabitants, like most Chinese, lived in poverty. In 1978 the average income in America was about 21 times that in China. But in 1979 China's leader, Deng Xiaoping, chose Shenzhen as the country's first special economic zone, free to experiment with market activity and trade with the outside world. Shenzhen quickly found itself at the leading edge of Chinese economic development, using the same model as Japan, South Korea and Hong Kong itself had done at earlier stages. In the late 1970s China was bursting with cheap, unskilled labour. It opened its doors (a crack, in lucky places like Shenzhen) to foreign manufacturers waiting to take advantage of these low labour costs. Even though wages were at rock bottom, both productivity and pay in urban factories were dramatically higher than in agriculture, so China's fledgling industrialisation attracted a steady flow of migrants from the countryside.

Over time local production became more sophisticated and wages went up. Industrial cities served as escalators for development, linking the Chinese economy with global markets and allowing incomes to rise steadily. The fruits of this process are clearly visible. As visitors approach the checkpoints between Hong Kong and the mainland, a modern skyline rises on the horizon. Great glass-sheathed skyscrapers reach upwards in central Shenzhen, which boasts some of the world's tallest buildings. At street level Chinese workers stroll past shopfronts displaying Western luxury brands: Ferrari, Bulgari, Louis Vuitton.

Governments across the emerging world dream of repeating China's success, but the technological transformation now under way appears to be permanently changing the economics of development. China may be among the last economies to be able to ride industrialisation to middle-income status. Much of the emerging world is facing a problem that Dani Rodrik, of the Institute for Advanced Study in Princeton, New Jersey, calls "premature deindustrialisation".

For most of recent economic history, "industrialised" meant rich. And indeed most countries that were highly industrialised were rich, and were rich because they were industrialised. Yet this relationship has broken down. Arvind Subramanian, of the Peterson Institute for International Economics and reportedly soon to become chief economic adviser to the Indian government, notes that, at any given level of income, countries today are less reliant on manufacturing, in terms of both output and employment, than they were in the past, and that the level of income per person at which reliance on manufacturing peaks has also declined steadily (see chart 4). When South Korea reached that point in 1988, its workers' earnings averaged just over $10,000 (in PPP-adjusted 2011 dollars) per person. When Indonesia got there in 2002, average income was just under $6,000, and for India in 2008 it was just over $3,000.

Premature non-industrialisation

Early loss of industry (or, in India's case, what Mr Subramanian calls "premature non-industrialisation") is a distressing trend, given the role that exports of goods have historically played in economic development. Productivity in export industries is generally high, otherwise they could not compete in global markets. Over time, productivity in making traded goods tends to rise as firms and workers in the industry become familiar with the technologies involved. Past developmental success stories such as the Asian tigers moved from low-margin, labour-intensive goods such as clothing and toys to electronics assembly, then on to component manufacture and, in the textbook cases of Japan and South Korea, to advanced manufacturing, design and management.

Export success trickles down to the rest of developing economies. Since producers of non-traded goods and services, such as housebuilders and lawyers, must compete with exporters for labour, they need to pay attractive wages. At the same time the chance of well-paid work in manufacturing creates an incentive for workers to move to cities and invest in education. An industrialising export sector is like a speedboat that pulls the rest of the economy out of poverty.

Loss of industry at low income levels, by contrast, caps the contribution that manufacturing can make to domestic living standards. That is no small problem: there is no obvious alternative strategy for turning poor countries into rich ones.

The change in technology's role in development began in the 1980s. Richard Baldwin, an economist at the Graduate Institute of International and Development Studies in Geneva, explains that for much of modern economic history the driving force behind globalisation was the falling cost of transport. Powered shipping in the 19th century and containerisation in the 20th brought down freight charges, in effect shrinking the world. Yet since the 1980s, he says, cheap and powerful ICT has played a bigger role, allowing firms to co-ordinate production across great distances and national borders. Manufacturing "unbundled" as supply chains scattered across the world.

According to Mr Baldwin, this meant a profound change in what it is to be industrialised. The development of an industrial base in Japan and South Korea was a long and arduous process in which each economy needed to build capabilities along the whole of a supply chain to manufacture finished goods. That meant few economies managed the trick, but those that did were rewarded with a rich and diverse economy.

In the era of supply-chain trade, by contrast, industrialisation means little more than opening labour markets to global manufacturers. Countries that can grab pieces of global supply chains are quickly rewarded with lots of manufacturing employment. But development that is easy-come may also be easy-go. Unless the economies concerned quickly build up their workers' skills and infrastructure, wage increases will soon lead manufacturers to up sticks for cheaper locations.

From stuff to fluff

Another mechanism through which new technology is changing the process of development is the dematerialisation of economic activity. Consumption the world over is shifting from "stuff to fluff", reckons Mr Subramanian. People everywhere are spending a larger share of their income on services such as health care, education and telecommunications. This shift is reflected in trade. Messrs Subramanian and Kessler note that, measured in gross terms, goods shipments dominate trade as much as ever. They accounted for 80% of world exports in 2008 (the most recent figure available), down only slightly from 83% in 1980. Measured in value-added terms, however, the importance of goods trade tumbled, from 71% of world exports in 1980 to just 57% in 2008, because of the increasing weight of services in the production of traded goods. Much of the value of an iPhone, for example, derives from the original design and engineering of the product rather than from its components and assembly.

A recent report by the McKinsey Global Institute put the value in 2012 of "knowledge-intensive" trade—meaning flows of goods or services in which research and development or skilled labour contribute a large share of value—at $12.6 trillion, or nearly half the total value of trade in goods, services and finance. Physical assembly accounts for a declining share of the value of finished goods. The knowledge-intensive component of trade is also growing more quickly than trade in labour-, capital- or resource-intensive products and services. At the same time the dramatic decline in the cost of information and communications technologies has opened up trade in some high-value services. Skilled programmers in India, for example, can sell IT services around the world despite the low overall level of development of the Indian economy.

India has masses of cheap, unskilled labour that ought to be attractive to firms wanting to set up low-cost manufacturing facilities. Yet operating them would require at least some skilled workers, and the rising premium on these created by trade in ICT services makes it uneconomic for many would-be manufacturers to hire the necessary talent. Mr Subramanian and Raghuram Rajan, another Indian economist, have dubbed this the "Bangalore bug", a

reference to the extraordinarily successful ICT cluster in the southern Indian city of Bangalore. But other emerging economies are similarly affected.

Other advances are eliminating the need for human labour altogether. Walking through an electronics production line at Foxconn's Longhua campus in Shenzhen, a worker points out places where people have already been replaced by machinery—"to reduce injuries to workers", he says. Elsewhere on the line he indicates a place where a robot is being tested to take over a range of tasks from humans. Perhaps 10% of the staff at Longhua now consists of engineers working on such automation.

Successful solutions will be rolled out to other Foxconn facilities, says Louis Woo, a special adviser to Foxconn's chairman, Terry Gou. And Foxconn has even greater ambitions. In Chengdu it is working on a "lights out", entirely automated, facility which serves a single, as yet unnamed, customer. In fast-developing and rapidly ageing China workers are becoming increasingly expensive, as well as hard to find. Automation provides a means to hold on to work that might otherwise pack up and move to another country.

It also saves a lot of trouble. Vast areas of Foxconn's Longhua campus are given over to support services for the roughly quarter of a million workers employed there: shops and restaurants, a massive central kitchen with automated rice-cooking equipment, dormitories that house about half the staff, schools for workers' children and counselling services for distressed employees. Foxconn's dormitories are ringed with netting, a precaution prompted by an epidemic of suicides by workers that set off a torrent of bad press for the company and its customers. Indeed, notes Mr Woo, it is often customers that are behind the push for greater automation of Foxconn's facilities.

The falling cost of automation makes the use of robots attractive even in India, where cities are swarming with underemployed young workers. The main reason for that is the country's thicket of red tape. Mr Subramanian thinks India's best hope now may be to concentrate on churning out more highly skilled workers, rather than count on manufacturing to mop up its jobless millions.

The rapid growth in emerging economies over the past 15 years was good for many very poor countries in Africa and Central America, but most still grew more slowly than richer developing countries in Asia and South America. Given the institutional weakness, inadequate infrastructure and modest skills base in many of the world's poorest places, even rock-bottom wages there may be insufficient to attract much manufacturing.

That is a distressing prospect. The United Nations estimates that sub-Saharan Africa's population will roughly triple over the next half-century, to about 2.7 billion. A development model in which rapidly rising incomes are limited to a highly skilled few is unlikely to be sustainable. Many talented workers are already thinking about emigrating, yet rich economies trapped by growing social spending and shrinking tax bases are more likely to slam their borders shut. Over the past decade or two inequality, despite rising within many economies, has shrunk at the global level, thanks to rapid growth in large emerging markets. But in the absence of a new development model, that happy state of affairs may soon be reversed