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Some developing economies are rich but crude, while others are poor but sophisticated

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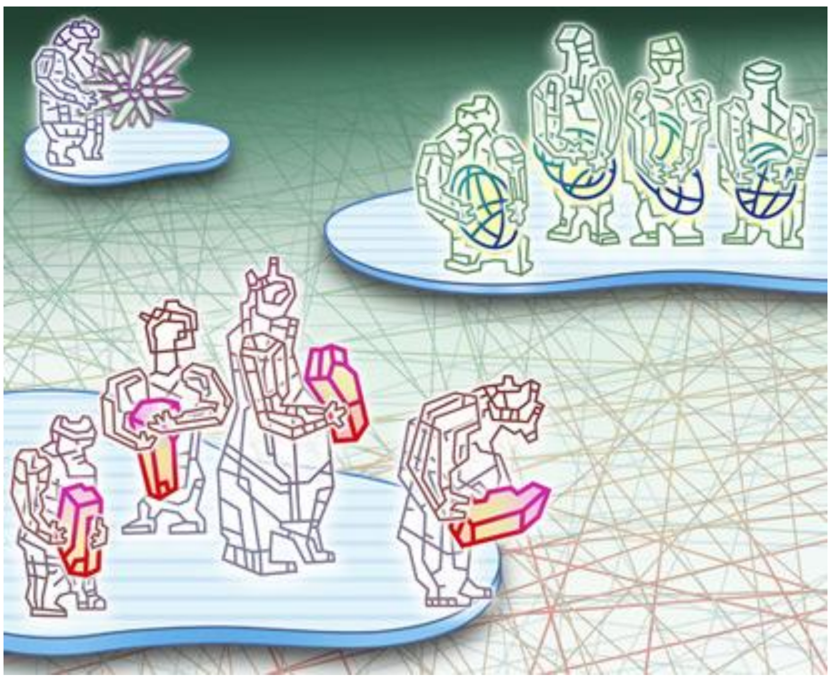

ONCE a sleepy fishing port, the industrial city of Yanbu, on Saudi Arabia's Red Sea coast, is now a monument to the country's efforts to diversify its economy. Its petrochemical plant is a sprawling palace of pipes. Propane tanks and cracking towers shimmer in the heat like domes and minarets. The facility's engineers live with their families nearby in a leafy enclave, their shady balconies reminiscent of the traditional rowshan windows of old Jeddah. At the local mall, shoppers can buy any flavour of Holsten Pils they like (strawberry, apple, pomegranate), so long as it is non-alcoholic.

Like many developing countries, Saudi Arabia has long struggled to wean itself off its dependence on a handful of commodities, in this case oil. Yanbu was built by a royal commission, set up in 1975 as part of a concerted effort to move the Saudi economy beyond crude into downstream industries, such as refined petroleum and petrochemicals. The policy has enjoyed some success: Saudi petrochemical exports exceeded $14 billion in 2008. The kingdom is more ambivalent about some of its other forays. It is, for example, now phasing out efforts to grow wheat in the desert.

Saudi Arabia's obsession with its industrial mix is not shared by most development economists. They traditionally judge the success of an economy by the volume, not the variety, of output per head. Two exceptions are Ricardo Hausmann of Harvard and his colleague, Cesar Hidalgo, a physicist. In a series of papers with various collaborators, they have explored the composition, as well as the quantity, of production, and have taken into account what countries produce, as well as how much.

Just as economies differ in size, the two authors show, they also vary in complexity. Some are eclectic, making a wide range of products. Others are esoteric, producing idiosyncratic goods that few other countries can make. The authors have created a measure of the sophistication of an economy based on two criteria. How many products does a country export successfully? And how many other countries also export those products? Sophisticated economies, by the pair's definition, export a large variety of "exclusive" products that few other countries can make.

Income and sophistication tend to rise in tandem, as you would expect. But some economies are surprisingly sophisticated, given their level of income. They tend to grow quickly, perhaps because they have mastered industries that are mostly the preserve of richer, and therefore costlier, rivals. Other economies, by contrast, are surprisingly crude, given their prosperity. Saudi Arabia, for example, ranks below the Philippines and Indonesia in sophistication, despite having a higher income per head.

In its recent efforts to diversify, Saudi Arabia has placed less faith in royal commissions and more in entrepreneurs. It is busy cutting red tape and streamlining procedures in a bid to become one of the world's ten most "competitive" economies by 2010, as ranked by the World Economic Forum and the World Bank's "Doing Business" league tables. Saudi Arabia hopes that the private sector, newly unencumbered, will sniff out fresh opportunities, diversifying the economy in response to market signals rather than royal decrees. The work of Messrs Hausmann and Hidalgo, however, suggests that the kingdom's entrepreneurs have their work cut out for them. As they point out, economies find it easier to master new products that are similar to ones they already make. It is easier to graduate from assembling toys to assembling televisions than to jump from textiles to laptops.

The two authors measure the proximity of one product to another based on the probability that a country makes both. In other words, if an economy that makes T-shirts is also likely to make bedsheets, the authors infer that T-shirts and bedsheets are closely related. They have displayed their results on an ingenious map of the industrial landscape, in which similar products cluster tightly together and unrelated products stand apart.

The territory their map reveals is far from uniform. It resembles a woodland, in which isolated knots of trees surround a few dense thickets of forest. An economy that already exports a few products in the thickest clusters can diversify quickly, hopping from one closely related product to the next. Saudi Arabia, by contrast, is stranded on one of those lonely clumps of products that seem only distantly related to anything else.

To cross these gaps, entrepreneurs need help. But royal commissions are not the answer. In work with Dani Rodrik of Harvard and Charles Sabel of Columbia University, Mr Hausmann argues that governments should emulate venture funds, backing new enterprises in the hope that one will make the leap into a more densely forested area. They should spread their bets widely, monitor progress closely, and cut losses promptly.

Do something different

Two hours' drive down the coast from Yanbu, Saudi Arabia's latest experiment in diversification is in progress. The King Abdullah Economic City (KAEC) was conceived by the Saudi government. But it is supposed to be built, run and paid for by the private sector. Taking the lead is Emaar.E.C, the local offshoot of a big Dubai developer, which raised 2.55 billion riyals ($680m) on the Saudi stockmarket in 2006.

In addition to a port, Emaar.E.C plans resorts, residences, schools and a financial centre. But it has left vast tracts of the site empty for other companies to fill, in the hope of attracting a cluster of light industries. Progress is slow. According to Reuters, Emaar.E.C received a loan of about 5 billion riyals from the government last month to stop it falling further behind on the project. What distinguishes a good diversification strategy, Messrs Hausmann, Rodrik and Sabel argue, is not the ability to pick winners; it is the guts to let losers go. But it is not easy to remain aloof from a city that bears the king's name.