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Moving Past Raw Materials Is Key to Development

By Ricardo Hausmann

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Poor countries export raw materials such as cocoa, iron ore and raw diamonds. Rich countries export more complex products such as chocolate, cars and jewels — often to those same poor countries. If poor countries want to get rich, they should stop exporting their resources in raw form and concentrate on adding value to them. Otherwise, rich countries will get the lion's share of the value and all of the good jobs.

Poor countries could follow the example of South Africa and Botswana and use their natural wealth to force industrialization by restricting the export of minerals in raw form (a policy known locally as "beneficiation"). But should they?

Consider Finland, a Nordic country endowed with many trees for its small population. A classical economist would argue that given this, the country should export wood, which Finland has done. By contrast, a traditional development economist would argue that it should not export wood; instead, it should add value by transforming the wood into paper or furniture — something that Finland also does. But all wood-related products represent barely

20 percent of Finland's exports.

The reason is that wood opened up a different and much richer path to development. As the Finns were chopping wood, their axes and saws would become dull and break down, and they would have to be repaired or replaced. This eventually led them to become good at producing machines that chop and cut wood.

Finnish businessmen soon realized that they could make machines that cut other materials because not everything that can be cut is made out of wood. Next, they automated the machines that cut because cutting everything by hand can become boring. From here, they went into other automated machines because there is more to life than cutting, after all. From automated machines, they eventually ended up with Nokia. Today, machines of different types account for more than 40 percent of Finland's goods exports.

The moral of the story is that adding value to raw materials is one path to diversification, but not necessarily a long or fruitful one. Countries are not limited by the raw materials they have. After all, Switzerland has no cocoa, and China does not make advanced memory chips. That has not prevented these countries from taking a dominant position in the market for chocolate and computers, respectively.

Having the raw material nearby is only an advantage if it is very costly to move that input around, which is more true of wood than it is of diamonds or even iron ore. Australia, despite its remoteness, is a major exporter of iron ore, but not of steel, while South Korea is an exporter of steel, though it must import iron ore.

What the Finnish story indicates is that the more promising paths to development do not involve adding value to your raw materials, but adding capabilities to your capabilities. That means mixing new capabilities (for example, automation) with ones that you already have (say, cutting machines) to enter completely different markets. In contrast, to get raw materials, you only need to travel as far as the nearest port.

Thinking about the future on the basis of the differential transport-cost advantage of one input limits countries to products that intensively use only locally available raw materials. This turns out to be enormously restrictive. Proximity to which particular raw material makes a country competitive in producing cars, printers, antibiotics or movies? Most products require many inputs, and in most cases, one raw material will just not make a large enough difference.

Beneficiation forces extractive industries to sell locally below their export price, thus operating as an implicit tax that serves to subsidize downstream activities.

But there is no reason to use the capacity to tax to favor downstream industries. As my colleagues and I have shown, these activities are neither the nearest in terms of capabilities, nor the most valuable as stepping stones to further development.

Arguably, the biggest economic impact of Britain's coal industry in the late 17th century was that it encouraged the development of the steam engine as a way to pump water out of mines. But the steam engine went on to revolutionize manufacturing and transportation, changing world history and Britain's place in it — and increasing the usefulness to Britain of having

coal in the first place.

By contrast, developing petrochemical or steel plants, or moving low-wage diamond-cutting jobs from India or Vietnam to Botswana — a country that is more than four times richer — is as unimaginative as it is constricting. Much greater creativity can be found in the United Arab Emirates, which has used its oil revenues to transform Dubai into a successful tourism and business hub.

There is a lesson here for the United States, which has had a major beneficiation policy since the 1973 oil embargo, when it restricted the export of crude oil and natural gas.

As the U.S. increasingly became an energy importer, its leaders never found any reason to abandon this policy. But the recent shale-energy revolution has dramatically increased the output of oil and gas in the last five years. As a result, the domestic natural-gas price is well below the export price.

This is an implicit subsidy to the industries that use oil and gas intensively and may attract some inward foreign investment. But is this the best use of the government's capacity to tax or regulate trade? Would the U.S. not be better off by using its capacity to tax natural gas to stimulate the development of the contemporary technological equivalent of the revolutionary engine?

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