Comments

Osmel Manzano: Maloney's paper is an interesting work on why Latin America did not perform as well as other economies with similar natural resource endowments. Implicitly, the paper enters into the so called resource curse literature, which expounds the hypothesis that countries with abundant natural resources perform worse than countries without abundant resources. The author tries to move the debate from the idea of a resource curse toward more general explanations tested in growth literature (namely, technology adoption). The argument is that deficient learning capacity and inward-looking industrialization, when it mattered, led Latin American countries to lower technology adoption, and they therefore underperformed relative to other resource-abundant countries.

As shown by the few existing historical series on economic performance, such as that provided by Maddison, and by papers on historical economic performance, including the work of Acemoglu, Johnson, and Robinson, Latin American economies were performing as well as or even better than other resource-abundant countries by the end of the last century and beginning of this century.[1] As indicated in the paper, however, it is the period after World War II that matters. First, technological evolution in the resource sector abroad caught the countries unprepared in terms of innovation-effective human capital. Second, countries opted for inward-looking industrialization, which also had a negative impact. These facts are quite interesting, and they shed light on the process lived through in each country.

The author states that these are two "central, although by no means exhaustive, explanations." However, a question remains after reading the paper: are these symptoms of deeper institutional problems, or are they actually causes of the poor performance? At the end, Maloney makes a case for the ISI policies as a consequence of the low learning capacity, but he leaves the door open to other factors that, in turn, led to a lower learning capacity and the wrong policy decisions. While I agree that looking

1. Maddison (1994); Acemoglu, Johnson, and Robinson (2002).

into these factors represents another research project, one has to wonder whether the institutions surrounding the resource sector and the type of resources had any impact on the two variables explained here.

In figures 10 to 13, I graph the relationship between resource abundance and resource dependence, with each figure depicting a different primary product—namely, agricultural raw materials, food, fuels, and minerals.[2] I represent the countries by their percentile position in each characteristic to avoid scaling factors. For agricultural raw materials and food, there is a relatively clear relationship: the position as a resource-abundant country reflects the position as a resource-dependant one (correlations in both cases are above 0.7). In a recent paper written with Roberto Rigobon, my coauthor and I show that being dependant on these goods did not have a negative impact on growth, so a country has nothing to worry about if it is abundant in these resources.[3] On the other hand, mineral and fuel resources exhibit more heterogeneity, and the figures mirror the examples given by Maloney. Countries like Australia and Canada lie below the 45 degree line, while Latin American countries tend to lie above it. Our paper shows that this type of dependency was associated with low growth. The fact that the problem arises in countries with abundant minerals and fuel suggests that the rent accrued from the resources and, therefore, the associated institutions are the immediate suspects for causing the problem.[4] This argument strengthens the case for ISI as a form of rent seeking in Latin American countries.

Nevertheless, one should not rule out the complete institutional framework supporting the sector: property rights in the sector, state intervention in the sector, international agreements (such as belonging to international cartels), and so forth.[5] For example, developing countries, especially in

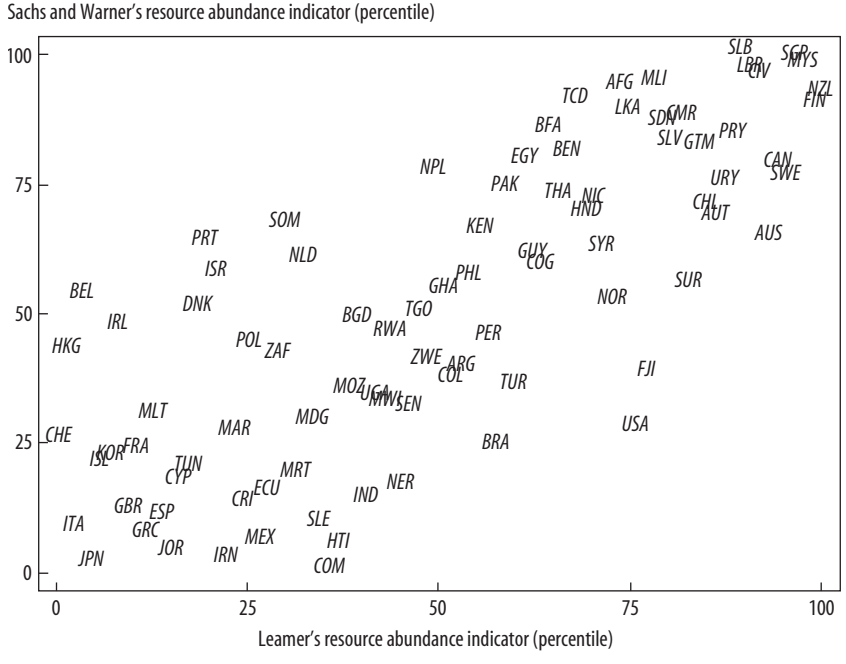
2. The research in this area to date uses primary exports as a share of GNP as a measure of resource abundance (Sachs and Warner, 1997; Manzano and Rigobon, 2001). As the author points out, this might not be the correct measure for abundance. Instead, he proposes Leamer's (1984) measure of endowments, which might capture abundance more closely. The previous measure should not be discarded, however, because it indicates how dependant a country is on its resource exports, and it can therefore distinguish between Australia and Guyana, for example, or the different cases presented by the author.

3. Manzano and Rigobon (2001).

4. That led us to introduce the debt variable in Manzano and Rigobon (2001).

5. Other factors include the presence of state-owned enterprises in the resource sector in Latin America, as well as nationalizations and the formation of international organizations of resource producers, which comprise most Latin American economies, but not necessarily the beta countries.

FIGURE 10. Agricultural Exports



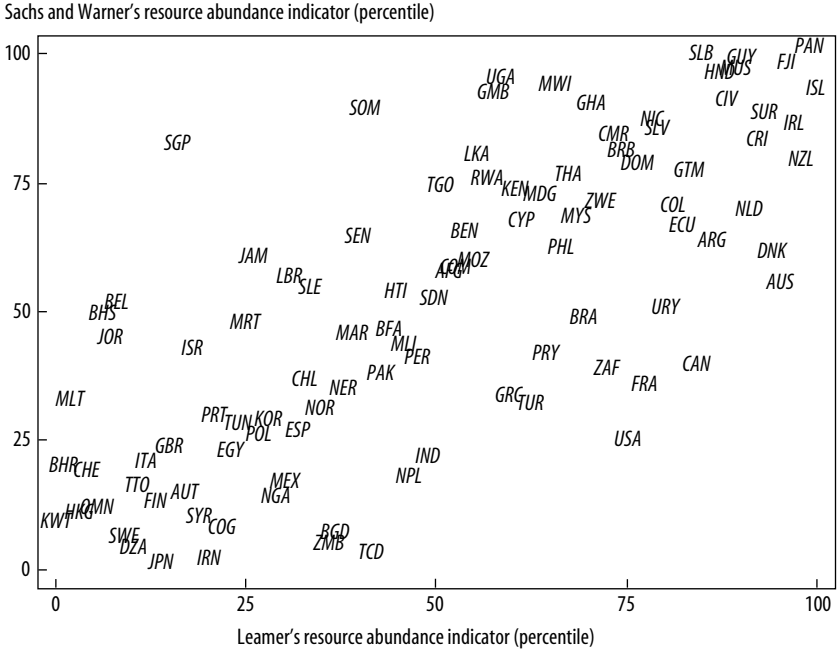
Latin America, tend to have lower extraction rates of nonrenewable resources than the world as a whole or at least than developed countries.[6] This is generally due to the sector's institutional framework. Consequently, these countries have younger mines and oil fields than the developed countries, and the exploiting firms are less pressured to find new reservoirs or to exploit more intensively, implying less need for new technologies.[7] This could make technology adoption endogenous to the institutional framework in the resource sector, even if the country has sufficient innovation-effective human capital.

Finally, an additional point supports the author's argument, but he does not mention it because it involves non-resource-abundant countries.

6. There are some exceptions, but this is generally the case. See Manzano (2002).

7. Of course, the ex ante conditions of the reservoir may sometimes be difficult, as in the case of the Brazilian off-shore oil fields, or it may be difficult to exploit the resource commercially, as in the case of Venezuelan extra-heavy oil.

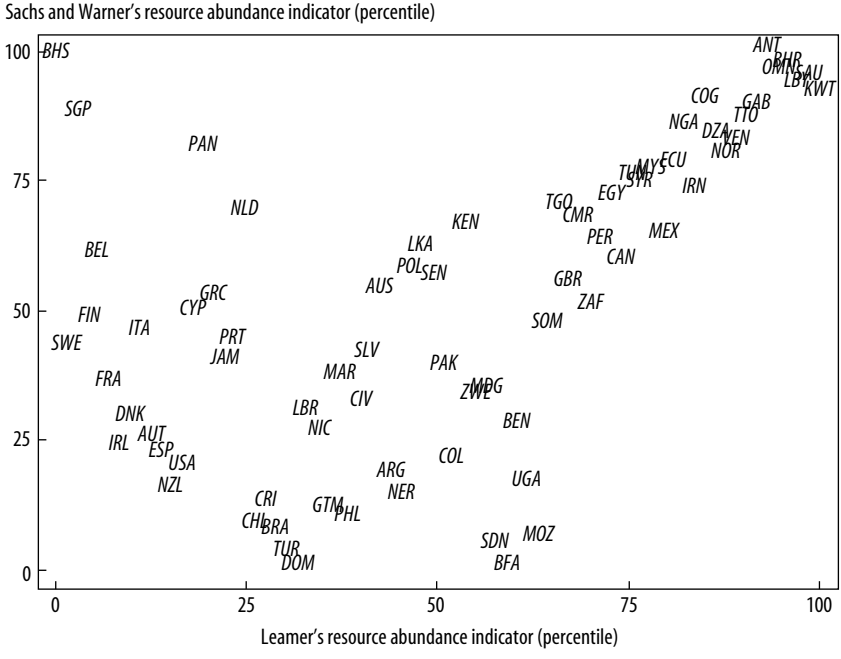
FIGURE 11. Food Exports



Evidence seems to show that resource-abundant countries have better human capital. Stijns shows that resource-abundant countries spend 5 cents in human capital formation for each dollar of rent received.[8] This helps to support Davis's findings that less-developed countries that are resource-abundant have better social indicators than nonabundant countries.[9] There are obvious concerns about the quality of the expenditure, as well as the quality of the education, but in general the numbers support these facts.[10] This findings may shed some light on the presence of sufficient innovation-effective human capital.

8. Stijns (2001).
9. Davis (1998).
10. Davis (1998) compares countries with similar levels of income, so the quality of education is arguably similar across the countries in his sample and a higher enrollment thus implies a higher level of human capital.

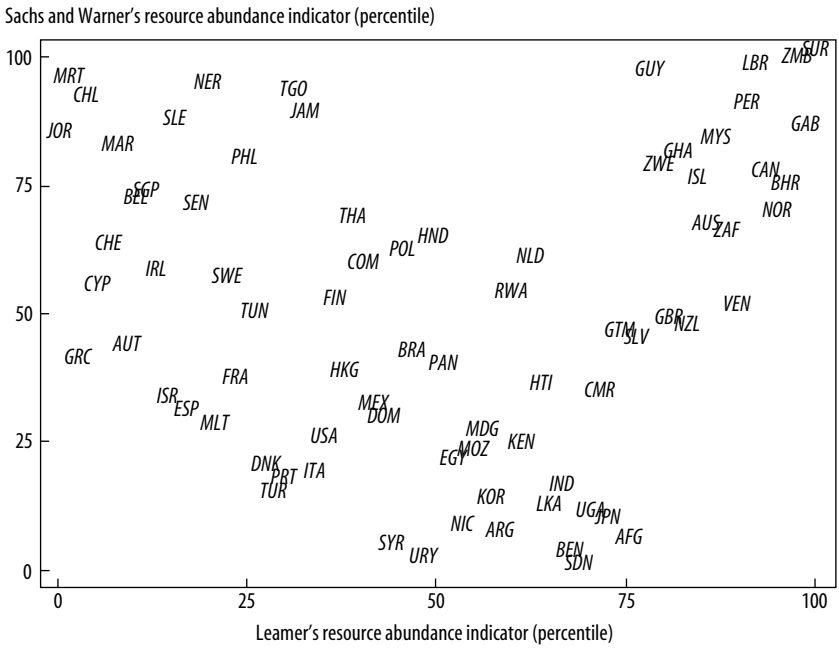
FIGURE 12. Fuel Exports



Leamer argues that resource-abundant countries might tend to have higher wages, owing to the rents in the resource sector.[11] One unexplored possibility, therefore, is that once the world started opening after the Great Depression, resource-abundant countries needed a sufficient level of innovation-effective human capital, and that level might actually have been higher for these countries than for nonabundant countries. Consequently, although resource-abundant countries have better human capital, in the case of Latin America it was not enough. If this conjecture is true, it also helps explain why the pattern chosen by the ISI policies might have failed, not only because of the incentives created, as the author mentions, but also because they might have induced the wrong pattern of specialization, as

11. Leamer (1984). Anecdotic evidence seems to support this view. For example, UNIDO´s Database on Industrial Statistics can be used to show that Venezuela had the highest wages in the industrial sector among Latin American countries between 1970 and 1990. I am grateful to Antonio Avalos for doing the calculations with his dataset.

FIGURE 13. Mineral Exports



compared with both other resource-abundant countries and nonabundant countries.[12] This opens the door for future research comparing Latin American and beta countries with countries that have similar incomes, to provide further insight into the results found in the research based on regressions mentioned by the author.

In summary, some resource-abundant countries clearly rely less on their resources than similarly endowed countries. This paper does a nice job of showing how resource-abundant countries that reduced their dependence seem to have done so through a process of technology adoption. Since growth in the long run comes from productivity gains, this process of technology adoption will probably help the country to continue to perform better. The conditions for that process, however, probably are not learning capacity and openness, but learning capacity and a policy mix that includes openness.

12. This point is supported by the author's quote from Blömstrom and Meller (1991b).

Andrew Warner: Will Maloney provides an interesting and innovative paper comparing Latin America's experience with natural resources and growth with that of what he calls the beta countries: Australia, Canada, Norway, Sweden, and New Zealand. Much of the paper is essentially a multiple regression with words rather than data: trying to explain why the beta countries did better than Latin America, holding other things constant. It's a verbal regression because there are not quite enough counties in the sample or sufficient data on the explanatory variables to estimate a proper regression. Nevertheless, the regression with prose is credible, and Maloney uses it to make a number of points that ring true, even though he offers little in the way of empirical proof.

The paper presents two important propositions. One is that deficient national learning, by which the author means a low ability to innovate and to absorb and adapt foreign innovations, has been a key impediment to Latin American development. The second is that because import substitution industrialization had to be financed by taxing other sectors, the ISI strategies discouraged innovation and growth in these other sectors, including the natural resource sector.

The essential idea that innovation or technology transfer activity can be an engine of growth is well established. The key notion is that there are rents or quasi rents to be earned by entrepreneurs involved in innovative activities or in adapting foreign innovation for the home market. If societies encourage or at least do not impede this kind of rent-seeking, the behavior can serve as an engine of growth and development, because the rent-seeking of the entrepreneur creates profit opportunities for investors and employment opportunities for workers. Since GDP is simply the sum of wages and profits, the process produces growth.

This is a difficult subject to pin down empirically. If Maloney's point were just that the lack of an innovation culture played some role in arresting Latin American development, it would be hard to dispute. Several Latin American writers have documented the low levels of mass literacy and the inhospitable environment for entrepreneurship and technological adaptation. At times in the article however, Maloney suggests that this was the key impediment, or at least the most important impediment, to development. This is where Maloney's article suffers from lack of evidence. It would have been helpful if the paper entertained other hypotheses about Latin American underdevelopment and attempted to test these hypotheses against one another.

The paper also argues that the curse of natural resources is not an iron law of economic development. As an abstract point, this is surely correct. Any development path that can be followed with zero natural resources can be followed at least as well with some natural resource rents. It must always be possible to develop better with natural resources than without natural resources.

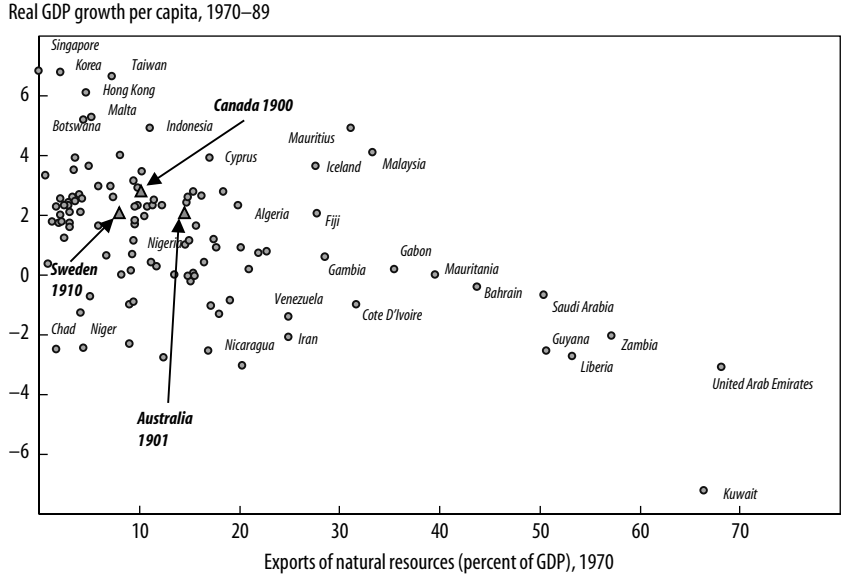
Somewhat more objectionable is Maloney's attempt to hold up the beta countries as examples of successful development based on natural resources. He points out credible evidence that these countries managed their natural resource sectors better than other countries and encouraged innovation in natural resource sectors. There is little evidence, however, for the crucial additional point: that the natural resource sectors were the crucial engine of growth in these countries.

The natural resource intensity of the beta countries must be put into perspective. In figure 14, I show a typical graph depicting the curse of natural resources. Growth between 1970 and 1989 is on the vertical axis and natural resource intensity, measured by exports of natural resources as a share of GDP, is on the horizontal axis. Superimposed on this graph are arrows indicating where the beta countries would be placed given their growth rates over the twentieth century and their natural resource intensity at the beginning of the century. The graph shows that by the standards of the late twentieth century, none of the beta countries were particularly resource rich; there is an important difference in magnitude between the beta countries and the experiences of resource-rich countries in the late twentieth century.

This figure casts doubt on the characterization of the beta countries as the leading examples of successful economic development based on natural resources. Some adjustment must be made for the differing time periods and slightly higher incomes of the beta countries, but still, these countries are not clear counterexamples of the pattern seen in the late twentieth century. If one is looking for examples of fast growth with high natural resource intensity, Mauritius and Malaysia would probably be better choices.

The weakest part of Maloney's paper comes right at the beginning, when he presents cross-country regressions. The regressions are used to claim three empirical points. The first is that countries with abundant natural resources did not grow slower than other countries in the first half of the twentieth century, which casts doubt on the results using late twentieth

FIGURE 14. Growth and Natural Resource Abundance 1970–89



century data. The second point is that the inverse association in the late twentieth century is entirely driven by the Latin American countries, and it is eliminated by a Latin dummy. The third point is that after introducing further controls for lack of investment, inward-looking policies, and a poor environment for innovation, the negative coefficient on the Latin American dummy variable is eliminated, suggesting that these policies are ultimately behind the poor growth record of Latin America.

The first point is correct if one simply looks at a sample of resource-intensive countries and growth starting in the late nineteenth century or early twentieth century. That is a relatively small sample, largely because data are simply not available for much of the rest of the world. Nevertheless, within the confines of this sample, counties such as Australia, Sweden, and Canada did not perform noticeably worse than other countries at the time. This result does not necessarily cast doubt on the finding from the late twentieth century, however, because the levels of natural resource intensity are quite different, as shown in figure 14.

The second point, that the empirical finding of a natural resources curse entirely depends on Latin American countries, is not correct. Figure 14

shows that the countries driving the empirical finding of an inverse association between growth and natural resources are countries such as Bahrain, Saudi Arabia, United Arab Emirates, and Kuwait in the Middle East, and Gabon, Zambia, and Liberia in Africa. Maloney's sample includes only thirty-six countries, none of which is among the extremely high natural resource economies just mentioned or the others depicted in the figure. His claim is a byproduct of the limited sample he uses. It is a little like testing for the effects of smoking by looking at a sample exclusively of nonsmokers. If there is no variation in the smoking variable, one cannot determine the effects of smoking.

Overall, Maloney offers an interesting and wide-ranging paper. The ultimate message is an optimistic one: namely, that it is wrong to think that Latin America is condemned to suffer the curse of natural resources. I think this is ultimately the correct perspective. The fact that many countries in the past suffered the curse of natural resources does not mean that countries cannot break the pattern in the future. The curse is certainly not a logical necessity; if anything, it is just the contrary. There are surely ways for countries to use natural resource wealth for beneficial purposes. In addition, the empirical fact is based on the experience of countries with extreme resource abundance, and much of Latin America is not nearly as abundant in resources as a share of the economy as Africa or the Arab states of the Persian Gulf. Maloney attempts to make the additional point that the policies promoting natural resources and innovation in the beta countries were responsible for their success, and that Latin America should emulate this. It's a plausible point. The argument needs to be made and analyzed further, although ultimately I cannot say that this paper empirically demonstrates these points.

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