

The Return of Dependency Theory: Is Primary Commodity Specialization Bad for Development?

Rodney D. Ludema¹
rludema@usitc.gov
202-205-3056

In the 1970s, most economists became disenchanted with dependency theory—and its consequent import substitution policies—for lack of evidence that specialization in primary commodities was damaging to a country's economic development. The anti-globalization movement of current times appears to be more willing to believe such dependency theories without supporting evidence. Whereas commodity dependence may indeed correlate with fluctuating terms of trade, it is neither clear that commodity prices are in fact trending down or whether living standards would be necessarily depressed if they did. Although other reasons—such as bad economic policies—may be more at fault, it is nonetheless true that primary commodities have not fared well on export markets in recent years and that such countries' external debts have been high.

Introduction

Developing countries have long been ambivalent towards trade liberalization. This ambivalence is enshrined in Part IV of the General Agreement on Tariffs and Trade (GATT), first adopted in 1965, which calls upon industrialized countries to open their markets to the exports of developing countries, while at the same time excusing developing countries from reciprocal liberalization whenever they perceive a threat to their development. While this ambivalence toward trade is similar to the mercantilist logic employed by trade negotiators generally, it differs in that it is justified by goal of ending poverty and despair in the Third World. As country delegations are scheduled to gather in Doha, Qatar, November 9-13, 2001, for the fourth WTO ministerial conference, this ambivalence will once again be on display. If developing countries do not take a firm stand in favor of greater openness, the proposed kick-off for a new round of global trade negotiations could result in another Seattle-style disaster.

A number of factors are pushing the issue of trade and development to the fore. Most developing country governments have come to accept, either through experience with failed import-substitution policies or by the necessity of terms under IMF conditionality and World Bank Structural Adjustment loans, that trade liberalization is the only way forward. Many have taken the step of reducing their trade barriers unilaterally. At the same time, they have found industrialized countries reluctant to liberalize trade in areas in which developing coun-

tries have a comparative advantage, such as agriculture and textiles. In addition, developing countries have seen their export revenues fall in recent years, because of the weakness in primary commodity prices. Thus, developing country governments are pressuring industrialized countries to open their markets to developing country exports.

Another factor is the growing "anti-globalization" movement, spearheaded by a network of non-governmental organizations (NGOs). Originally concerned for the most part with the effects of trade on labor and environmental standards, this movement has expanded its scope and now seems to have adopted a conceptual framework based on old-fashioned dependency theory.² The idea is that trade with industrialized countries traps developing countries in permanent underdevelopment, because it induces them to specialize in primary commodities—raw materials and agricultural products—according to their "static" comparative advantage. Dependent on primary commodities, developing countries fall victim to the vicissitudes of commodity markets. Standards of living decline secularly as the prices of such goods decline, relative to the exports of the industrialized world. Moreover, fluctuations in commodity prices force developing countries into debt when prices are low; debts that can only be repaid with export revenues from commodity exports (derisively referred to as "cash crops" by globalization foes). This commodity trade-debt nexus is why the WTO, IMF, and World Bank are all seen as linked together in a conspiracy of exploitation.

¹ The views and conclusions expressed in this article are those of the author. They are not the views of the U.S. International Trade Commission as a whole or of any individual Commissioner.

² Palma (1978) provides a survey of the major currents in the dependency literature. See Wallach and Sforza (1999, Ch. 5) for a recent critique of the WTO policies toward developing countries.

The positions of the developing country governments and the anti-globalization movement appear to be at odds with each other. The former want more trade with industrialized countries, while the latter wants less.³ Nevertheless, they can agree that industrialized countries should not be the ones putting up barriers to North-South trade. Rather, it should be the developing countries that have the option to restrict trade, according to their development needs. Thus, despite the history of failure of import-substitution policies, the ambivalence of Part IV of the GATT remains as politically compelling as ever.

This article takes a brief, critical look at some claims of dependency theory, with an emphasis on the facts. While economists typically treat this issue as part of the debate over import-substituting versus export-oriented industrialization,⁴ this article examines the more fundamental question of whether dependence on primary commodities is indeed detrimental to economic development. The conclusion is that primary commodity dependence is neither as prevalent nor as damaging to developing countries as it has been made out to be.

The Prebisch-Singer Hypothesis

Dependency theory draws heavily on the work of Prebisch (1950) and Singer (1950). These authors were concerned about the then-rising per capita income gap between industrialized and developing countries and its relationship to international trade. They argued that international specialization along the lines of comparative advantage had excluded developing countries from the fruits of technical progress that had so enriched the industrialized world.

They rested their case on three stylized facts: first, that developing countries were indeed highly specialized in the production of primary commodities; second, that technical progress was concentrated mainly in industry; and third, that the relative price of primary commodities in terms of manufactures had fallen steadily since the late 19th Century. Together these facts suggested that, because of their specialization in primary commodities, developing countries had obtained no benefit from industrial technical progress, either directly through higher productivity, or indirectly

³ Globalization foes have an explanation for this disagreement: the leaders of developing countries tend to be Northern-educated elites who do not represent the interests of the people. See, e.g., *Fifty Years is Enough: U.S. Network for Global Economic Justice*, at <http://www.50years.org/s28/responses.html>.

⁴ For a good, accessible treatment of this debate, see Ch. 10 of, Krugman, Paul R. and Maurice Obstfeld, *International Economics: Theory and Policy*, 5th ed., Addison Wesley Longman, 2000.

through improved terms of trade. Rather, they had lost ground.

How Dependent are Developing Countries on Primary Commodities?

There is no single measure of primary commodity dependence. The most common approach is to examine the share of a country's export revenue attributable to its top one or two export commodities. Table 1 shows all countries (developing and industrialized) with at least 10 percent of their export revenue from a primary commodity. There are 22 countries that derive at least half of their export revenue from a single primary commodity. All of them are developing countries, predominantly from Africa and the Middle East and exporting chiefly crude petroleum. Another 38 countries derive between 20 and 49 percent of their export revenue from a single commodity. Crude petroleum accounted for about a third of these as well. There are 47 countries that derive between 10 and 19 percent of export revenues from one primary commodity. The fact that so many commodity-dependent countries are dependent on oil is important, because the behavior of oil prices has been very different from that of other primary commodity prices over the years. For this reason, empirical work relating to the Prebisch-Singer hypothesis almost always excludes oil.

With the exception of the oil exporters, most countries have experienced a decline in the export share of primary commodities since the middle of the 20th Century. The interpretation of this requires care, however, for if indeed the price of primary commodities relative to manufactures has trended downward over the same period, commodity export shares would tend to fall even without any changes in export volumes. Nonetheless, there is supporting evidence for the claim that commodity dependence has fallen in recent years. Monzano and Rigobon (2001) report that, between 1978 and 1996, per capita production of primary commodities by the most commodity-dependent countries fell faster than for the rest of the world in every commodity except for silver. Gutiérrez de Piñeres and Ferrantino (2000) construct a price-deflated index of export specialization (a measure of the concentration of export revenues in all goods, not just primary commodities), and show that the index has steadily fallen in Latin America since the early 1960s.⁵

An alternative approach measuring dependence is to examine the importance of primary commodities prices for the terms of trade (relative price exports to

⁵ A decline in export specialization need not correspond to a decline in commodity dependence, if a country diversifies into other primary commodities.

Table 1
Countries Deriving a Sizable Share of Export Earnings from a Commodity
(Based on annual average export shares, 1992-97)

Commodity	50 percent or more of export earnings	20-49 percent of export earnings	10-19 percent of export earnings
Aluminum		Tajikistan	Bahrain
Arabica coffee	Burundi, Ethiopia	Rwanda	Colombia, Guatemala, Honduras, Nicaragua, El Salvador
Bananas		St. Vincent, Honduras	St. Lucia, Costa Rica, Ecuador
Cocoa	Sao Tome and Principe	Cote d'Ivoire, Ghana	Cameroon
Copper	Zambia	Mongolia, Chile	Congo, Dem. Rep., Peru, Kazakhstan, Papua New Guinea
Copra & coconut oil	Kiribati		
Cotton		Benin, Chad, Mali, Sudan, Pakistan, Uzbekistan	Burkina Faso, Paraguay, Azerbaijan, Tajikistan, Turkmenistan
Crude petroleum	Bahrain, Saudi Arabia, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Yemen, Angola, Gabon, Nigeria, Congo Rep., Venezuela	Syria, United Arab Emirates, Cameroon, Equatorial Guinea, Ecuador, Trinidad Tobago, Azerbaijan, Papua New Guinea, Brunei Darussalam, Norway, Russia	Egypt, Algeria, Colombia, Mexico, Indonesia, Kazakhstan, Vietnam
Fishmeal			Peru
Gold		Ghana, South Africa, Papua New Guinea	Mali, Zimbabwe, Guyana, Uzbekistan
Iron Ore		Mauritania	
Natural gas	Turkmenistan	Algeria	
Rice			Guyana
Robusta coffee	Uganda		Cameroon
Sugar		Mauritius, Guyana, St. Kitts & Nevis	Swaziland, Belize
Tea			Kenya, Rwanda
Timber (Hardwood)		Equatorial Guinea, Lao PDR, Solomon Islands	Central African Rep., Swaziland, Gabon, Ghana, Cambodia, Papua New Guinea, Indonesia, Myanmar
Timber (Softwood)			Latvia, New Zealand
Tobacco	Malawi	Zimbabwe	

Source: Cashin, Liang, and McDermott (1999).

imports) of developing countries. Bleaney and Greenaway (1993), for example, estimate the relationship between the terms of trade and an index of primary commodity prices for non-oil developing countries from 1955-89. The results show that for every 1 percent increase in the relative price of primary commodities there is a 0.3 percent increase in the terms of trade of non-oil developing countries. These results are similar to those of Grilli and Yang (1988) and Powell (1991). In a similar vein, Bidarkota and Crucini (2000) find that at least 50 percent of the annual variation in national terms of trade of a typical developing country

can be accounted for by variation in the international prices of three or fewer primary commodity exports.

While it is clear that variation in primary commodity prices causes variation in the terms of trade in developing countries, perhaps the more relevant question is whether the alleged downward *trend* in commodity prices causes a similar trend in the terms of trade. This is considered indirectly by Hadass and Williamson (2001). They bypass the question of the relationship between the terms of trade and commodity prices altogether and simply reexamine evidence on the Prebisch-Singer hypothesis, using country-specific

terms-of-trade data, instead of commodity price data. They construct estimates of the terms of trade for 19 countries, developing and industrialized, and aggregate these into four regions: land-scarce Europe, land-scarce Third World, land-abundant New World (Australia, Canada and the United States) and land-abundant Third World. They find that the terms of trade improved for all regions except for the land-scarce Third World (which fell slightly) during the same period from 1870 to World War II (the period on which Prebisch and Singer had based their conclusions). This was due in part to rapidly declining transport costs.

In sum, most developing countries depend on primary commodities for at least 10 percent of their export revenues, though their dependence is declining, and the majority of the most commodity-dependent countries are oil exporters. The terms of trade of developing countries fluctuates along with commodity prices in the short run, though this has generally not produced a secular deterioration in their terms of trade over the long run.

Do Relative Commodity Prices Trend Downward?

This is one of the most debated questions in development economics. Visual inspection of an index of non-fuel commodity prices relative to manufactures would appear to support the Prebisch-Singer hypothesis of a downward trend.⁶ However, inferring a trend from these data is much more complicated than simply observing that the index is lower now than it was before. The notion of a trend implies an underlying tendency, which can be used to predict the value of the index in the future.

Uncovering a trend from a stochastic time series is like trying to infer the destination of vessel from its path through a violent storm. There are a number of possible hypotheses to consider. One possibility is that the pilot has a destination in mind and always tries to point the vessel in that direction. This would produce what is known as a "deterministic trend." Another possibility is that the pilot has no destination in mind and simply goes whichever way the wind blows. This is referred to as a "unit root process." If the wind has no prevailing direction, so that the vessel has as much chance of turning North as South at each point in time, the process is called a "random walk." If there is a prevailing direction to the wind, it is called a unit root with "drift." Still another possibility is that there might be "structural breaks." In the case of a deterministic trend, this would correspond to the pilot setting a new course at some point along the trip. In the case of a unit root, this would correspond to a change in the prevailing wind.

⁶ The index includes 24 non-fuel primary commodities: bananas, beef, cocoa, coffee, lamb, maize, palm oil, rice, sugar, tea, and wheat; cotton, hides, jute, rubber, timber,

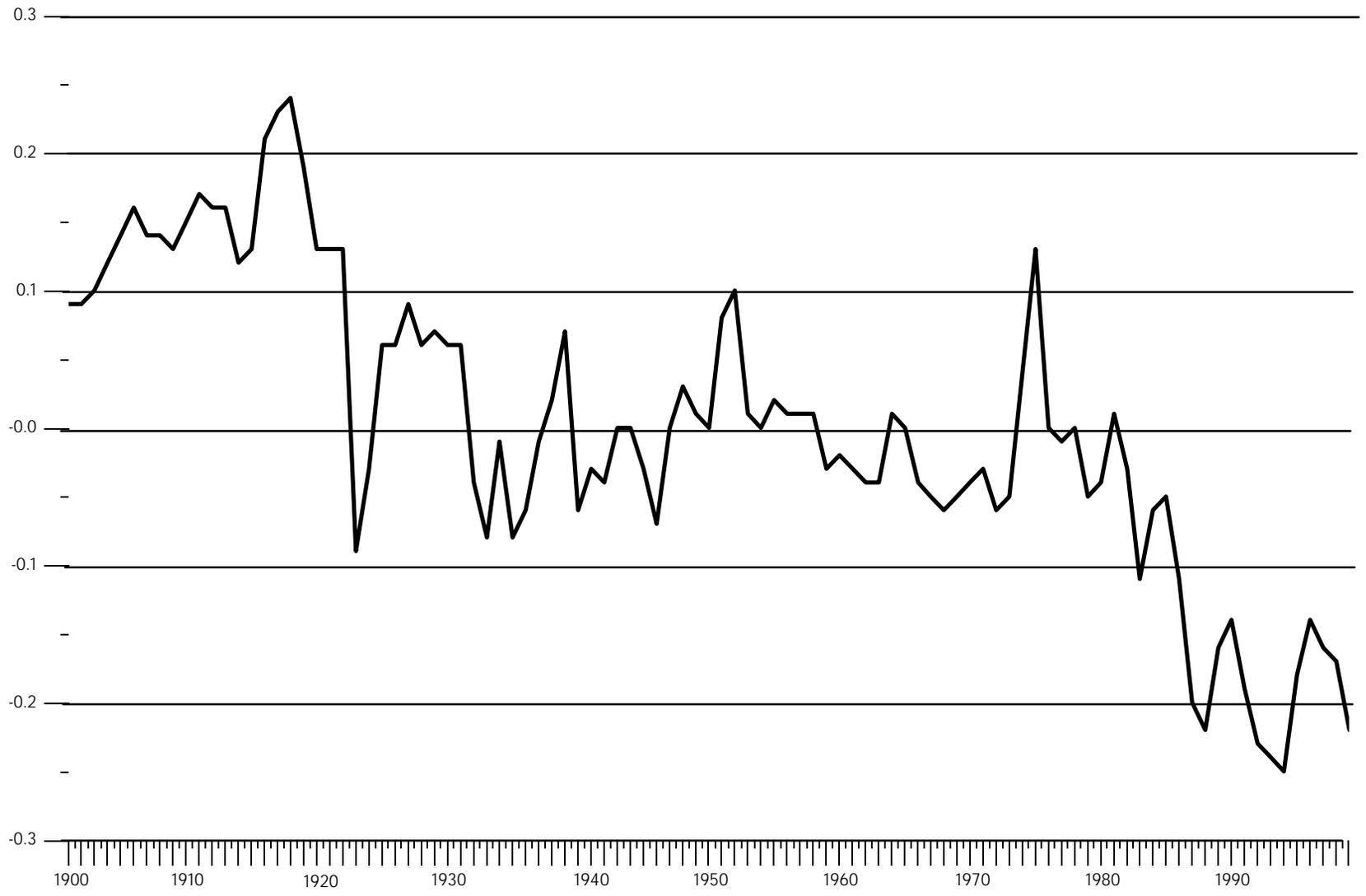
All of these hypotheses have been tested in the case of relative commodity prices. About the only point on which there is now a general consensus is that the hypothesis of a single deterministic trend can be rejected. Recent literature finds strong evidence of downward structural breaks, one in 1921 (Cuddington and Urzúa, 1989) and a smaller one in 1985 (Cuddington, Ludema, and Jayasuriya, 2001). Moreover, once these breaks are accounted for, one can detect neither a downward deterministic trend nor a downward drift in a unit root process in the periods between the breaks. That is, commodity prices tend to level off after the breaks.

So what caused these structural breaks? Empirical work on commodity price determinants has identified a number of factors (see, e.g., Borensztein and Reinhart, 1994, and Hua, 1998). Commodity prices are influenced positively by worldwide industrial output, as primary commodities are used as inputs to industrial production; negatively by the value of the U.S. dollar, as commodities prices are quoted in dollars, and thus an appreciation increases the price (and lowers demand) in non-U.S. markets; and negatively by interest rates, as commodity stocks become more costly to hold when interest rates are high. Commodity prices are also affected by supply shocks. In 1921, the sustained economic expansion associated with World War I came to an abrupt halt, as the U.S. Federal Reserve sharply increased interest rates, and the U.S. real exchange rate soared. This caused the largest ever fall in commodities prices. In the early 1980s, there was a severe recession, followed by an appreciation of the U.S. dollar and record interest rates lasting much of the decade. At the same time, the collapse of the Soviet Union, and along with it the collapse of industrial production in that region, sent a flood of primary commodities onto world markets from former Soviet states. The debt crisis of the mid-1980s is thought to have had a similar effect, as did 1997 Asian financial crisis. This sequence of events has held commodity prices down, since the mid-1980s.

One final issue is whether the relative price of primary commodities in terms of manufactures, as presented in figure 1, is even relevant to the living standards of commodity-dependent countries. If the relative price of primary commodities falls because of a rapid expansion of the relative supply of primary commodities, then on balance the commodity-producing nations are better off. Moreover, indices measuring the relative price of primary commodities in terms of manufactures do not properly account for the increasing quality of manufactures. This point was originally made by Viner (1953). The index in figure 1. measures how large a bundle of manufactured goods one can buy with a given bundle of primary commodities. A fall in this number may not be bad thing for a commodity exporter, if the quality of the bundle of manufactured

⁶—Continued
tobacco and wool; aluminum, copper, lead, silver, tin, and zinc.

Figure 1
Price index of primary commodities relative to manufactures, 1900-1998



Source: Data supplied by the IMF; index based on Grilli and Yang (1988).

goods imported improves substantially at the same time. The fact that the biggest manufactured exports of industrialized countries are goods like computers and cars, the quality of which has increased remarkably in recent years, gives this argument particular force.

In sum, while there have clearly been declines in commodity prices at certain times, there is little if any, evidence of a downward trend in commodity prices. Nor is it clear that this would depress living standards if there were. If commodity dependence is bad for developing countries, therefore, it is probably not for the reasons suggested by Prebisch and Singer.

Does Commodity Dependence Retard Growth?

Despite the paucity of evidence supporting the Prebisch-Singer hypothesis, there may still be a negative connection between commodity dependence and growth, but this too is a debated issue.

The standard empirical approach to this issue is to use a cross-country growth regression. A cross-country growth regression is an equation that relates economic growth, as the dependent variable, to various country characteristics (e.g., investment, human capital, rule of law, openness, past growth rates) as independent variables, for a large cross-section of countries. Sachs and Warner (1995, 2001) conduct such an exercise and include among the independent variables the level of commodity dependence, as measured by the ratio of commodity exports to GNP. They find that commodity dependence negatively affects growth—specifically, a 1 percent increase in commodity dependence is associated with a decrease in economic growth of 0.07 percent to 0.10 percent. They refer to this result as the “resource curse.” The reason for the curse, they speculate, is that production of tradable manufactures generates dynamic technological spillovers that other sectors do not.

Manzano and Rigoban (2001) challenge this result by showing that the curse disappears when the cross-country growth regression is estimated on panel data, which accounts for changes in the variables over time. Basically, the Sachs-Warner result says that countries with above average commodity dependence have below average growth, and vice versa. It does not say that a country that reduces its commodity dependence over time will increase its growth rate. This latter type of relationship is rejected by the data, according to Manzano and Rigoban.

Manzano and Rigoban also offer an alternative explanation for the Sachs-Warner cross-sectional result: resource rich countries, instead of being disadvantaged, were showered with credit in the late 1970s.

This was essentially an asset price bubble that burst when commodity prices declined a few years later. The resulting debt overhang then became a drag on growth, as countries found themselves unable to borrow. This hypothesis is supported by the fact that, when the debt to GDP ratio is included as an independent variable in Sachs-Warner’s regression, the effect of commodity dependence on growth is no longer statistically significant.

In related work, Gutiérrez de Piñeres and Ferrantino (2000), using an approach similar to that of Manzano and Rigoban, show a negative relationship between economic growth and export specialization in Latin America. Export specialization is not quite the same as commodity dependence, however. A country may diversify its exports and yet remain predominantly a commodity exporter, as did Chile, for example. The implication of Gutiérrez de Piñeres and Ferrantino’s result is that there may be gains to export diversification, though this need not involve a flight from primary commodities.

In sum, there is little evidence that commodity dependence *per se* reduces economic growth. At worst, commodity dependence is correlated with other factors that do negatively affect growth, such as export specialization and poor decision making (by both developing country governments and international lenders). These factors are not necessary consequences of commodity dependence.

Conclusions

Dependency theory fell out of fashion in the early 1970s, along with the import-substitution policies it helped to spawn. Most economists at that time recognized the paucity of evidence supporting the notion that specialization in primary commodities is damaging to economic development. Even economists who maintained the validity of the Prebisch-Singer hypothesis (like Prebisch and Singer themselves) balked at import-substitution policies, when it became clear that those policies had failed. In the end, the only remaining dependency theorists were those for whom empirical evidence was irrelevant. The anti-globalization movement appears to be following in these footsteps.

Dependence on primary commodities has long been on the decline for non-oil commodity exporters, and while commodity dependence does lead to fluctuating terms of trade, there is no long-run downward trend either in primary commodity prices or in developing country terms of trade. Nor is it clear that a downward trend would depress living standards if there were one. There is also no evidence of a direct connection between primary commodity dependence and economic growth. Instead, there seems to be a correlation between primary commodity dependence and bad economic policies.

There is a grain of truth to the claims of the anti-globalization movement. Countries that export primary commodities have not fared so well in recent years—their growth has been slower, and their external debts have been high. Moreover, these debts would probably not have been incurred had they not been resource-rich countries. However, none of this supports the claim that developing countries would gain by withdrawing from international trade. Rather, doing so would prob-

ably make matters worse, as trade restrictions are well known to be inefficient instruments of economic policy and there is considerable empirical evidence suggesting a positive link between trade and economic growth.⁷

⁷ See, e.g., Levine, R. and D. Renelt, (1992), "A Sensitivity Analysis of Cross-Country Growth Regressions," *American Economic Review*, 82(4), 942-63.

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