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Accounting for Latin American Growth: A Trade and Macroeconomic Perspective

ABSTRACT This paper reviews Latin America's growth over the last half century using a novel method that decomposes countries' growth relative to the world into three factors: (1) the traction on growth exerted by export expansions (export pull), (2) the growth implications of changes in external imbalances (external leverage), and (3) the economy's ability to expand faster than its imports (domestic response). It applies this method to explore the macroeconomic and trade drivers behind several historical growth trends: (1) the success or failure of Latin America's import-substitution industrialization, (2) Mexico's persistent slow growth despite a successful switch to export-oriented industrialization, (3) the ability or failure of South American commodity exporters to grow smoothly based on commodities, and (4) the heterogeneous growth performance of Central American services producers and exporters. With different mixes and patterns by subregion, insufficient export pulls, depressed domestic responses, and bursts in external leverage all played major roles in explaining the region's disappointing growth.

JEL Codes: 040, 054, F10

Keywords: Growth, convergence, Latin America, export-led growth, procyclical and countercyclical macroeconomic policies, import-substitution industrialization, commodity dependence, natural resource curse, export diversification

This paper explores and analyzes the determinants of Latin America's uneven economic progress from an international trade and macroeconomic perspective that looks at historical trends and recent events (in particular the China-induced commodity cycle).[1] The analysis is backed by a novel macroeconomic and trade-based growth decomposition method

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1. For the purposes of this paper, Latin America is composed of Mexico, Central America, and South America, where Central America is defined to include Costa Rica, Guatemala, Honduras, and Panama, plus the Dominican Republic, and South America includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay. Venezuela and El Salvador are added to these groups in some charts when the data are available.

that breaks down a country's growth relative to the world into three drivers: an export pull (EP), which measures the traction exerted by the country's exports on its growth; an external leverage (EL), which captures the impact on growth of changes in the country's real exports relative to its imports and thus in its use of external resources; and a domestic response (DR), which measures the country's output response to the imports resulting from the combined export pull and external leverage.

Our growth decomposition method contrasts with traditional, Solow-inspired approaches, which focus on productivity and factor accumulation, thereby failing to capture macroeconomic or trade-originated dynamics or implicitly assuming that such dynamics are of second-order importance. Our decomposition focuses precisely on such dynamics, which have played a major role in shaping Latin America's growth path in the past sixty years and are therefore crucial for developing a meaningful growth-oriented reform agenda. We use this decomposition method to explore and illustrate four growth puzzles.

Latin America's import-substitution industrialization puzzle relates to the reasons behind the success or failure of the import-substitution industrialization (ISI) strategy over the 1960–81 period. A comparison of the growth decompositions of countries that expanded significantly faster than the world (chiefly Brazil and Mexico) and those that contracted relative to the world (such as Argentina, Chile, or Peru) points in the direction of commodity export earnings as the key differentiating factor, rather than, as generally argued, increasing returns in domestic industrialization linked to country size. Thus, ISI, which was expected to free countries from commodity dependence, not only failed to do so but actually accentuated the reliance on commodities.

Mexico's export-oriented industrialization puzzle arises in a country that was able to switch from an ISI strategy to an export-oriented industrialization strategy. Despite this successful switch, the growth payoffs have been disappointing. Why? The growth decomposition method reveals that much could be attributed to the high transitional costs associated with the mid-1980s shift from very high ISI-related protection to open international trade, in a turbulent macroeconomic context characterized by a strongly appreciating real exchange rate and substantial inflation. As a result, trade liberalization led in Mexico to a DR-induced growth collapse that was significantly larger than the world average under similar episodes. The DR collapse was subsequently compounded by a sharp fall in EP, as Mexico's late entry into the world of manufacturing exports collided in the 2000s head-on with stiff

competition from Chinese manufactures. While Mexican exports have picked up in recent years, their impact on the country's growth continues to reflect a mix of demand limitations from Mexico's main destination market—a naturally slow-growing automotive industry in a mature U.S. economy with rising protectionist tendencies (an EP problem)—and supply limitations coming from inside Mexico—the limited domestic value added of Mexican exports in a fragmented, unevenly developed, low-productivity economy (a DR problem).

South America's commodity puzzle centers on commodity exports, which have historically played a fundamental role in the region's growth dynamics and continue to do so for South America. While some countries, such as Chile and more recently Peru, have registered significant and prolonged growth spurts, others, such as Argentina and Venezuela, have fallen prey to persistent symptoms of the commodity curse. How much of these contrasting results can be explained by macroeconomic policy alone? The analysis in this paper points toward the secular drag arising from the tight link between growth and the EP, itself driven by commodity export volume. While this link was at times relaxed by terms-of-trade windfall gains, the failure to properly control spending during commodity booms (again, a macroeconomic problem) greatly accentuated the adjustment pains in the busts, seriously undermining through-the-cycle growth performances. Thus growth has been impaired in countries that were unable to exploit new commodity-related export outlets (an EP problem) or to develop a proper macroeconomic capacity to prudently manage the associated terms-of-trade volatility (EL and DR problems).

Central America's services puzzle centers on the interplay between services and growth. While growth has been largely inward-oriented in all Central American countries (as reflected in a high correlation between DR and growth), a substantial EP-induced differential has separated the high performers (Panama, the Dominican Republic, and Costa Rica) from the low performers (Guatemala, Honduras, and El Salvador). Behind these contrasts was a clear tilt in favor of investment and foreign direct investment (FDI) in the high performers versus consumption and remittances in the low performers. The contrast between the high performers' ability to pull in people and equity finance and the low performers' tendency to drive out workers and rely on remittances can in turn be linked to radical differences with regard to the quality of their rule of law. Thus, the key growth contingency in this case has been countries' capacity to establish the domestic environment required to attract and retain the investment and people needed to generate sufficient export capacity (again, an EP problem).

The rest of the paper is organized as follows. The next section identifies and characterizes the four Latin American growth puzzles. We then develop and explain the trade- and macroeconomic-based growth decomposition methodology and apply the method to shed light on the above four puzzles and the issues they raise. The final section concludes.

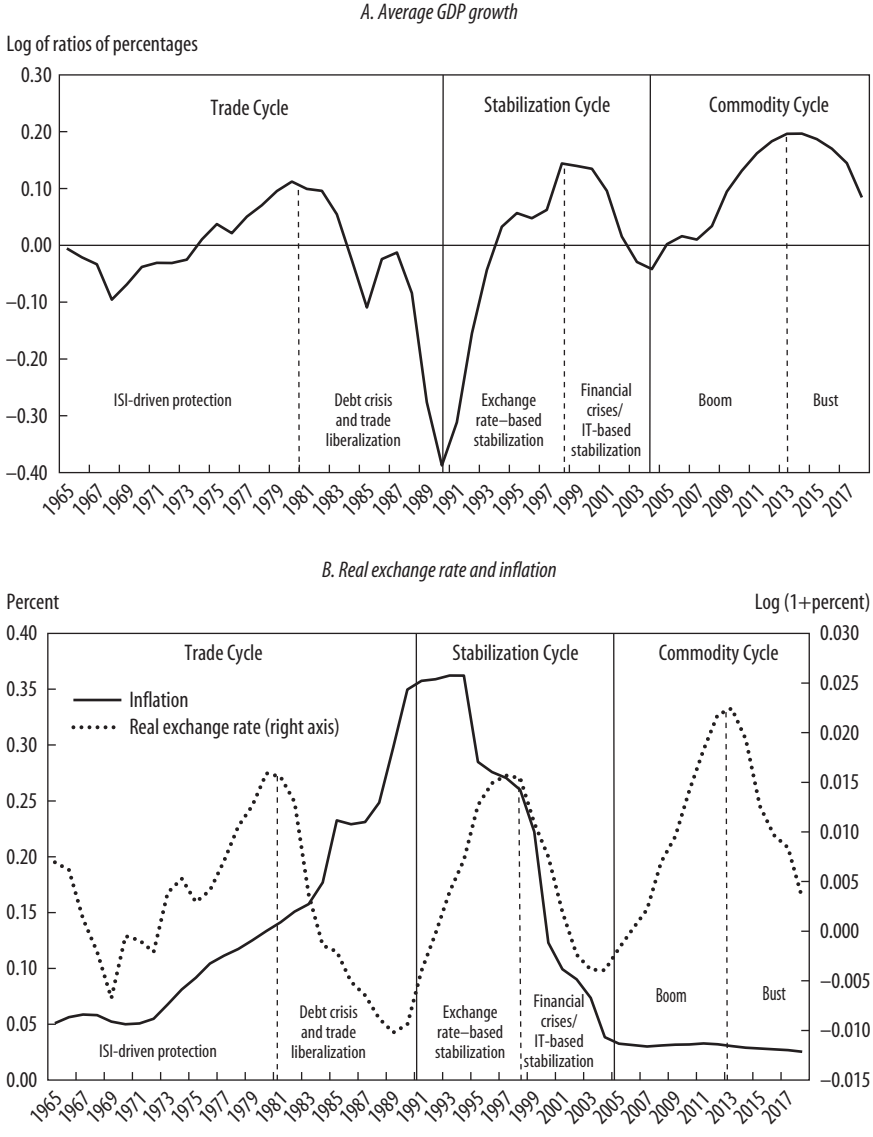
Latin American Growth since the 1960s: Key Features and Puzzles

Relative to the world, Latin America's growth since the 1960s has been disappointing overall: on average, the region has grown at roughly the same pace as the rest of the world yet with much more volatility, resulting in three pronounced cycles over the last half-century (figure 1, panel A). During the first cycle (the Trade Cycle of 1960–90), the region underwent deep structural changes in its trade orientation. The upswing phase (1960–81) was marked by an inward-oriented growth model based on import-substitution industrialization (ISI), where the region grew slightly faster than the world. However, the ISI grand experiment lost steam by the end of the 1970s. A colossal downswing phase ensued (1981–90), triggered by adverse exogenous shocks and marked by a massive, multicountry debt crisis, which pushed Latin American growth dramatically below global growth. In the process, the region was forced into painful macroeconomic adjustments and compelled to seek a way out through a gradual process of trade opening and liberalization.

During the second cycle (the Stabilization Cycle of 1990–2003), the region focused on reining in the inflation generated during the previous cycle, partly a by-product of excess fiscal spending in a closed economy in the waning days of ISI (figure 1, panel B). The region conquered inflation largely with the help of exchange rate–based stabilization programs (1990–98) while at the same time embracing ambitious, Washington Consensus–style reforms focused mainly on central bank independence, fiscal rules, (further) trade and financial liberalization, and privatization. However, the macrofinancial dynamics that were unleashed by a disinflation approach anchored on exchange rates planted the seeds of the financial (currency, banking, and debt) crises of the second half of the 1990s and early 2000s, crises that again dragged the region's growth below that of the world.

The third cycle (the Commodity Cycle of 2003–18) was deeply marked by the momentous surge of China. The boom in commodity prices that began around 2003, which lifted growth in the region relative to the world's, was followed by a commodity price bust starting around 2013, which led to a

FIGURE 1. Latin America's Growth Cycles



Source: Data from World Bank, World Development Indicators database.

Notes: Growth is calculated as described in the next section, based on the logs of average yearly GDP growth rates over backward-looking moving windows (five-year windows between 1965 and 1969 and ten-year windows thereafter). The real exchange rate is the region's average relative to the U.S. dollar. It is calculated as the log of 1 plus the average yearly growth rate of the real exchange rate index over the same five- and ten-year backward-looking windows. The inflation rate is the region's average inflation where the latter is calculated as the average yearly rate of change over the same five- and ten- year backward-looking windows of the GDP deflator. Countries include Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Peru, Panama, and Uruguay.

major growth slowdown. The region's average real exchange rate relative to the U.S. dollar co-moved with the three cycles, mirroring domestic demand fluctuations, appreciating strongly in the upswings and depreciating sharply in the downswings (figure 1, panel B).

Within the region, however, growth experiences over the three cycles were quite diverse, with the heterogeneity across countries changing over time.[2] During the Trade Cycle, some countries (Brazil, Colombia, Ecuador, and Mexico) grew rapidly during the upward phase of the cycle (the ISI period of 1960–81), but then retreated during the downward phase (the debt crisis and trade liberalization period of 1982–91) (see figure 2, panel A). In contrast, other South American countries (Argentina, Bolivia, Chile, Peru, Uruguay, and Venezuela) contracted during the entire cycle, following a trajectory remarkably close to that of New Zealand, a country with a similarly high concentration in the export of specialized commodities.

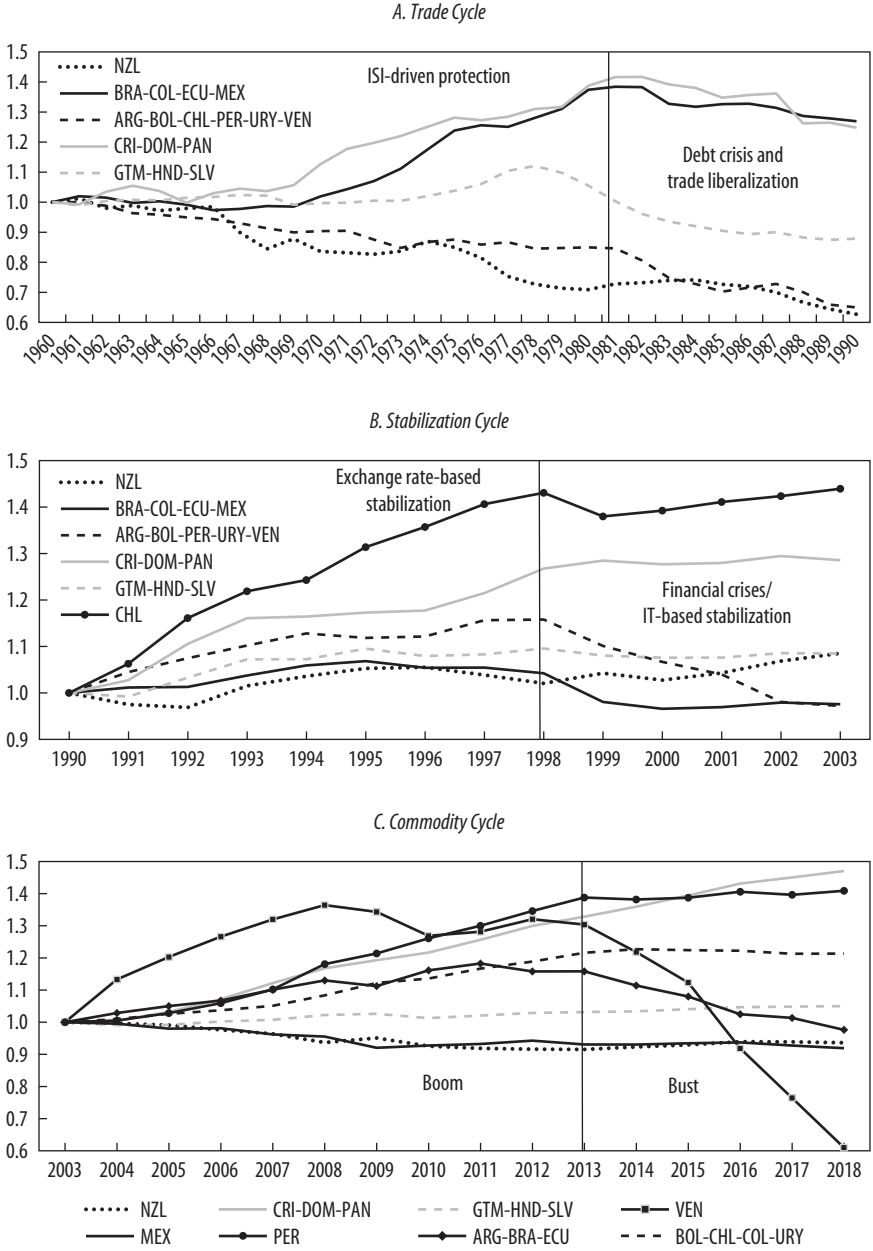
During the Stabilization Cycle (1991–2003), Chile exited the mostly flat trend followed by other South American countries to become a star performer (figure 2, panel B). During the Commodity Cycle (2003–18), Peru delivered a stellar performance even as Chile lost steam (figure 2, panel C). Other commodity-exporting countries (Argentina, Brazil, Ecuador, and Venezuela) experienced buoyant growth during the commodity boom but then collapsed in the bust, with Venezuela going into a veritable free fall. While some Central American and Caribbean countries (Dominican Republic, Panama, and, to a lesser extent, Costa Rica) performed strongly throughout the three cycles, others (Guatemala, El Salvador, and Honduras) performed rather poorly.

As we apply the decomposition method to explore the drivers and factors underlying such diverse growth experiences, it is necessary to keep in mind the bifurcation in trade structures that started to materialize in the mid-1980s (figure 3). Prior to that, virtually all Latin American countries were commodity exporters and therefore had similar export baskets. Afterward, however, South America consolidated or intensified its reliance on commodity exports (panel A), Mexico shifted sharply toward manufacturing exports (panel B), and Central America moved decidedly, though more gradually, toward the export of services (panel C).

These changing trade structures altered countries' exposures to terms-of-trade shocks (figure 4). Before the mid-1980s, the entire region experienced

2. For a more detailed discussion of the contrasts in growth performances across Latin American countries during each of the three cycles, see De la Torre and Ize (2020).

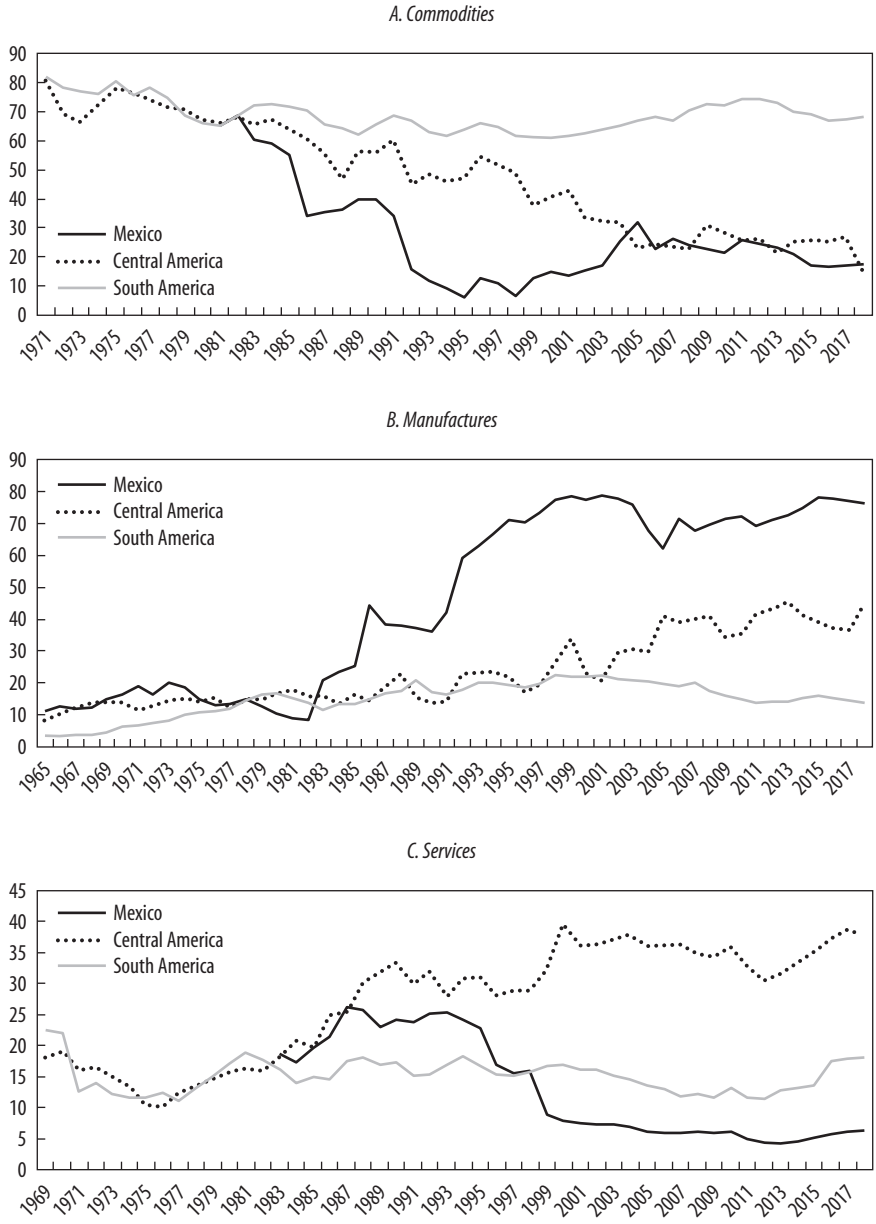
FIGURE 2. Growth Performances during the Trade, Stabilization, and Commodity Cycles
Country GDP/World GDP Index; 1960 = 1



Source: Data from World Bank, World Development Indicators database.

Note: Countries that followed similar growth paths during 1960–90 are grouped together. New Zealand is added as a lower-growth frontier and a peer country against which to compare commodity- producing countries.

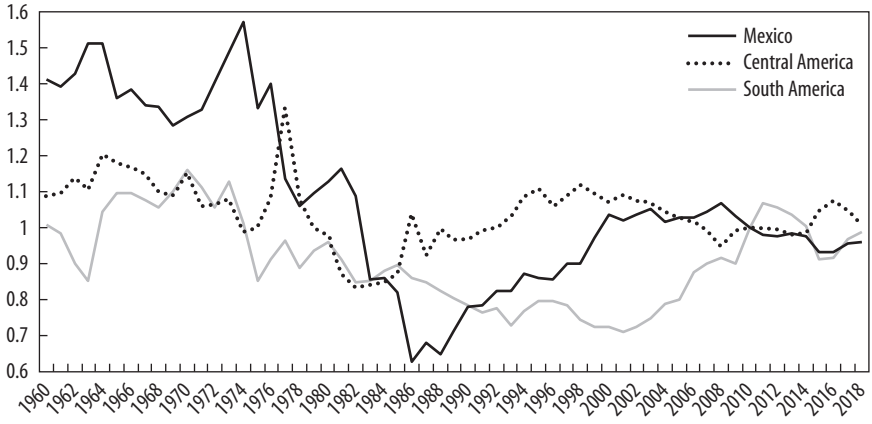
FIGURE 3. Latin American Export Shares, by Broad Type of Product



Source: Data from World Bank, World Development Indicators database.

Note: The manufactures and services series are directly drawn from the World Bank's WDI database. The commodities series is obtained as a residual from total exports of goods and services. Central America includes Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, and Panama. South America includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay.

FIGURE 4. Terms of Trade



Source: Data from World Bank, World Development Indicators database.
Note: The terms of trade are obtained from the ratios of exports and imports in current to constant dollar prices. The regional country breakdown is the same as in figure 3.

a broadly similar downward trend in its terms of trade. After that, however, there was an abrupt bifurcation that spanned both the Stabilization and Commodity Cycles. South America's terms of trade continued to decline, but Central America's stabilized and Mexico's bounced back during the Stabilization Cycle. Trends reversed during the Commodity Cycle, when South America (but not the rest of the region) clearly benefited from the surge in commodity prices.

The above discussion raises four major Latin American growth puzzles, each of them linked to a distinct growth regime.

—*Latin America's import-substitution industrialization puzzle*. Even though most countries in the region embraced inward-oriented ISI policies with similar vigor, only a few registered growth rates significantly above global rates in the 1960–81 period (Brazil and Mexico were considered the miracle cases). Insofar as Argentina and Venezuela were clearly not among the high performers, but Ecuador and Colombia were, it seems difficult to argue that country size (and hence the economies of scale needed for inward-oriented growth) were the sole deciding factor. What, then, determined the success or failure of ISI?

—*Mexico's export-oriented industrialization puzzle*. Although Mexico was able to successfully switch to an export-oriented industrialization

strategy, the growth payoffs were rather disappointing: Mexico's growth has fallen steadily behind world growth since the 1970s, with Mexico becoming the worst performer in the region after Venezuela. Why was that the case?

—*South America's commodity puzzle*. While the heavy reliance on commodities has shown no clear sign of abatement since the 1960s for most South American countries, some economies (Chile first, Peru later) have managed to escape the downward growth trend followed by most other specialized commodity exporters. What explains these heterogeneous results, particularly the difference between Chile and Argentina? And how sustainable is a Chilean-style commodity-reliant growth strategy likely to be?

—*Central America's services puzzle*. Most Central American countries have become services exporters, but only a few (Panama, the Dominican Republic, and, to a lesser extent, Costa Rica) have delivered high growth relative to the world's. What explains the success or failure of the services-intensive growth strategy followed by these countries, and what are the lessons for the rest of the region?

The rest of this paper sheds light on each of these puzzles by systematically applying the growth accounting methodology described in the next section.

Accounting for Growth

As shown by Thirlwall (2011), the deviations of a country's growth rate from that of the world may be linked to trade, that is, to the vigor and flexibility of the country's exporting activity and its capacity to expand output faster than imports. Based on Thirlwall's insight, we derive in this section a simple growth accounting decomposition equation by introducing two key modifications to his model. First, rather than assuming current account equilibrium, an "external leverage" residual term is added to incorporate deviations from current account equilibrium.[3] Second, rather than assuming constant trade

3. The deviations from current account equilibrium are set in terms of *growth rates* of imports and exports rather than *levels*. This is less restrictive than Thirlwall's assumption of current account equilibrium in levels. Since we leave aside factor payments, our measured deviations are from the trade and nonfactor services balance, rather than from the current account balance. This distinction is not that relevant, however, in light of the limited volatility of net factor income and because everything is expressed in terms of growth rates. A branch of the Thirlwall-related literature deals with this issue (see, for example, Elliot and Rhodd, 1999).

(export and import) elasticities and using them to predict growth, the observed growth outcome is taken as given and decomposed into trade and macroeconomic factors. We then examine how the resulting accounting decomposition is affected by shocks, whether demand, supply, or trade based.

A Simple Growth Accounting Decomposition

Let g_y be the real output growth rate for any given country and g_y^* the real output growth rate for the world; g_x and g_m the real (constant dollars) growth rates of the country's exports and imports, respectively; and $g_x^* = g_m^*$ the real growth rate of the world's exports and imports. The ratio g_y/g_y^* can then be written as follows:

$$(1) \qquad \frac{g_y}{g_y^*} = \left(\frac{g_x}{g_y^*}\right)\left(\frac{g_m}{g_x}\right)\left(\frac{g_y}{g_m}\right).$$

Because world exports equal world imports ($g_x^* = g_m^*$), equation 1 may be rewritten so that all its terms are expressed relative to the world:

$$(2) \qquad \frac{g_y}{g_y^*} = \left(\frac{g_x}{g_x^*}\right)\left(\frac{g_m}{g_x}\right)\left(\frac{g_y}{g_m} \Big/ \frac{g_y^*}{g_m^*}\right).$$

Based on the following definitions and notation,

$$(3) \qquad \mathrm{G} = \log\left(\frac{g_y}{g_y^*}\right),$$

$$(4) \qquad \mathrm{EP} = \log\left(\frac{g_x}{g_x^*}\right),$$

$$(5) \qquad \mathrm{EL} = \log\left(\frac{g_m}{g_x}\right), \text{and}$$

$$(6) \qquad \mathrm{DR} = \log\left(\frac{g_y}{g_m} \Big/ \frac{g_y^*}{g_m^*}\right),$$

equation 2 can be rewritten as

$$G = EP + EL + DR, \tag{7}$$

where EP stands for export pull and can be interpreted as the traction that export expansion exerts on a country's growth; EL is external leverage and can be interpreted as the push or drag on growth linked to a country's accumulation or dissipation of net foreign assets or its use of terms-of-trade (TOT) windfall gains; and DR is the domestic response, which can be interpreted as the country's capacity to lift GDP growth above import growth (or its efficiency in using imports to grow).

Based on equations 4 and 5, (the log of) import growth relative to world trade (that is, the import response, IR) can be derived as the sum of the export pull and the external leverage:

$$IR = \log\left(\frac{g_m}{g_m^*}\right) = EP + EL. \tag{8}$$

This provides an alternative expression for the growth decomposition, which helps distinguish the declines in DR driven by surges of imports (which reflect demand expansions) from those driven by falls in output (which reflect supply contractions):

$$G = DR + IR. \tag{9}$$

Valuation gains and losses deriving from relative price changes also need to be considered. Such valuation effects can be of two types: the traditional TOT fluctuations (that is, changes in a country's export prices relative to its import prices), and fluctuations in the country's import prices relative to the world's import prices (that is, its relative import prices, RIP). When significant, TOT fluctuations alter the purchasing power of a country's output, thereby becoming important drivers of aggregate spending. RIP fluctuations do not alter the purchasing power of a country's output, but they may explain changes in the country's shares in world GDP and trade. Both types of valuation changes can be captured by the difference between the nominal and real formulations of the growth accounting decomposition. Using the prefix *N* to identify the nominal (current dollars) version of the ratios that define each of the growth components, the growth decomposition becomes

$$G = NEP + NEL + NDR. \tag{10}$$

Real and nominal values are linked as follows:

$$\text{EP} = \text{NEP} - \text{TOT} - \text{RIP}, \tag{11}$$

$$\text{DR} = \text{NDR} + \text{RIP}, \text{ and} \tag{12}$$

$$\text{EL} = \text{NEL} + \text{TOT}, \tag{13}$$

where TOT and RIP are defined as follows (subscripts in capital letters are attached to nominal growth rates and subscripts in lowercase letters to real growth rates):

$$\text{TOT} = \log\left[\left(\frac{g_X}{g_x}\right)\left(\frac{g_m}{g_M}\right)\right]; \tag{14}$$

$$\text{RIP} = \log\left[\left(\frac{g_M}{g_m}\right)\left(\frac{g_m^*}{g_M^*}\right)\right]. \tag{15}$$

Our growth accounting decomposition shares the same limitations as other decomposition methods in economics. As an identity, it does not of itself make predictions, nor does it explicitly recover underlying behavioral relationships or formally provide causal explanations.[4] Moreover, because it is expressed relative to that of the world, the accounting decomposition is uninformative about possible worldwide changes in productivity or other fundamentals of global growth, such as factor usage or accumulation.

However, it can shed light on the linkages between trade, growth, and the macroeconomy, something that pure supply-based models of trend growth generally miss. The tool's usefulness is enhanced by its linearity and the definition of all country growth components in relation to the world's growth components, features that promote standardization and comparability across

4. The Solow-inspired growth accounting model and the Oaxaca-Blinder decomposition for labor economics are the two best-known decomposition methods in economics. As noted by Aghion and Howitt (2007) and Fortin, Lemieux, and Firpo (2010), by introducing a residual to close a model, these approaches turn the model into an identity, thereby making it "theory free" (that is, consistent with different theories). Yet both methods have been used extensively as analytical tools to help shed light on the complexity of the underlying processes and assess alternative interpretations regarding their causes.

time and between countries.[5] As shown next, this growth decomposition method can thus enable inferences that help identify how growth responds to shocks or innovations in supply, demand, or trade.[6]

Growth Shocks

Equations 7 and 10 imply a useful point of reference, a sort of steady-state condition that obtains when all the country variables grow at the same rate as the same variables for the world. In that case, the right-hand-side terms in equations 7 and 10 all equal zero, and the country's growth rate equals that of the world. But a country's growth can deviate from the world's because of supply, demand, or trade shocks, which can take the form of volume (constant dollar) changes or value (current dollar) changes.

Because the accounting identity is based on three rates of growth (output, exports, and imports) which, by construction, appear in two of the components of the identity, these components are clearly interdependent. Hence a shock that affects any of these three growth rates will automatically have an impact on two of the components of the identity. Moreover, depending on the nature of the shock (supply, demand, trade policy, and so forth), it will affect the three growth rates differently. Thus different types of shock will leave different imprints on the growth spectrum (that is, G, EP, DR, EL, and IR), thereby making it possible to use the accounting decomposition not just as a device to reveal interesting patterns in the data but also as an analytical tool to identify shocks and track down their dynamic impact. Tables 1 and 2 provide a synthetic overview on how to use the accounting identity as an interpretative tool for volume and valuation effects, respectively.

All shocks are assumed to be of size u, with possible offsetting responses of size v.[7] To cleanly isolate (analytically speaking) the effects of a particular

5. The use of ten-year moving averages to calculate the accounting identity provides the best trade-off between eliminating background noise, on the one hand, and capturing the relevant shocks and trends on the other. However, because of data limitations (the World Bank's World Development Indicators database starts in 1960), the initial values of the growth decomposition (from 1965 to 1969) are derived based on five-year moving averages. Insofar as all terms in the decomposition equation are ratios of growth rates, the components can be interpreted as time-varying elasticities, which gives them an economically meaningful dimension, consistent with Thirlwall's approach.

6. As solid as such inferences can be, they do not formally solve the endogeneity problem or allow full identification in a micro-econometric sense.

7. Because growth and each of its components are measured in logs relative to the rest of the world, any deviation from zero (that is, a deviation from the world's average) is defined as a shock, which may be short-lived or long-lasting.

TABLE 1. Accounting for Growth Shocks: Volume Effects

	Supply		*Demand*		
Variable	*Uniform*	*Domestic*	*External*	*Domestic*	*Trade liberalization*
EP	*u*		*u*		*v*
EL				*u*	
DR		*u*		*−v*	*−u*
G	*u*	*u*	*u*	*u − v*	*v − u*
IR	*u*		*u*	*u*	*v*

Note: EP, export pull; EL, external leverage; DR, domestic response; G, growth; IR, import response.

shock or innovation, we consider only the shock's first-round impacts (u and v) on the terms of equations 7 and 10—which cause those terms to deviate from the balanced path—while assuming that other terms continue growing at the same rate as the corresponding world variables. Second-round effects are left aside or, equivalently, considered to be separate shocks.[8]

We consider first volume shocks, that is, shocks that affect the rates of change measured in constant dollars (table 1). We start with a positive uniform supply shock (the reasoning would be the same for a negative shock), reflecting an increase in productivity (or factor accumulation) that equally boosts exports and goods produced and consumed domestically, including tradable and nontradable goods. As a result, as shown in the table, G and EP would both rise by u. In the absence of a domestic demand shock, EL would remain unchanged, implying that imports would rise by as much as exports; hence, DR would also remain unchanged. Such a pure uniform supply shock is analogous to a productivity boost in a traditional single-good, Solow-inspired growth accounting identity, where possible macroeconomic or trade deviation from the "balanced path" are, by construction, excluded from consideration or assumed to be stochastic shocks with mean equal to zero. However, as discussed below, that pattern does not fit well the growth dynamics of Latin America, where trade and macroeconomic factors have been crucial in shaping the region's growth experience.

In contrast, a purely domestic supply shock that boosts the country's output relative to imports but has no impact on exports should lead to a rise in G and

8. Second-round effects can go from supply to demand—a positive supply shock that raises output may, in a second round, also raise domestic demand through classical income or wealth effects—or from demand to supply—a positive demand shock may, in a second round, also raise supply, as increased capacity utilization induces higher productivity growth, the Verdoorn effect (Verdoorn, 1993).

DR with a constant EP and, in the absence of a domestic demand shock, a constant EL. As we discuss below, this growth imprint fits well the ISI period in Latin America, where protection failed to promote exports yet led to an expansion in manufacturing production for the local market.

Consider now the case of an external demand shock (that is, a rise in world demand for the country's exports). By assumption, domestic demand does not change, so the positive external demand shock should not alter the current account (it would boost the growth rate of exports and imports equally); therefore, it would raise EP and G while leaving EL and DR constant. Hence the first-round impact of a positive external demand shock would be observationally equivalent to that of a uniform, across-the-board supply (productivity or factor accumulation) shock.[9]

The impact of a domestic demand shock (for instance, an autonomous increase in real government spending) depends on whether the economy is near full employment. Under a pure Keynesian environment (that is, a horizontal supply curve), it would lead to a rise in G, accompanied by a similar increase in the growth rate of imports (given the country's marginal propensity to import). Thus EL would rise, while DR would remain unchanged. In contrast, in a pure classical setting (that is, a vertical supply curve), the domestic demand shock would expand imports but have no impact on G. Hence it would raise EL while lowering DR by an equivalent amount. Under the more general case of a combination of classical and Keynesian effects (the fourth column in the table), the positive impact on G would be dampened by some decrease in DR. The combined effect on output will therefore equal $u - v$, where $v \leq u$. Hence EL + DR can be identified *in this case* as the total (net) domestic demand impact, of which –DR is the "excess demand," a potentially inflationary component.

Changes in DR (that is, in the ratio of output growth to import growth) could thus be dominated by either supply (where variations in output growth prevail) or demand (where variations in import growth prevail). Comparing the paths jointly followed by each of the growth components in equation 7 helps identify the drivers. A rise in G accompanied by a decline in DR and a rise in EL must reflect a domestic demand–driven supply expansion that moves the economy toward full employment. In contrast, a change in G accompanied by a change in DR in the same direction and no change in EL must reflect a pure supply shock. However, a decline in G accompanied by a fall in DR and a rise in EL most likely reflects an expansion in domestic

9. This identification problem is amply discussed in the Thirlwall-related growth literature. See, for example, McCombie and Thirlwall (2006).

TABLE 2. Accounting for Growth Shocks: Valuation Effects

	TOT		
Type of effect and variable	*Unspent*	*Spent*	*RIP*
Nominal			
NEP	u	u	u
NEL	$-u$		
NDR		$-v$	$-u$
Real			
G		$u - v$	
EP			
EL		u	
DR		$-v$	
Valuation			
TOT	u	u	
RIP			u

Note: TOT, terms of trade; RIP, relative import prices. For other notations, see table 1 footnote.

demand that ends up having a negative impact on supply owing to a surge of inflation, a real exchange rate appreciation, and a rising indebtedness possibly climaxing as a financial crisis.[10] As illustrated below, the data confirm the importance of such mixed shocks for Latin American growth dynamics (that is, bouts of expansionary domestic demand that ended up having negative consequences for supply), which are particularly relevant to shedding light on South America's commodity puzzle.

Finally, a trade liberalization shock should lead to an increase in both exports and imports, thereby raising EP and IR while reducing DR. If the trade liberalization episode boosts overall productivity, and hence G, DR should decline by less than the rise in EP ($v > u$). If instead it ends up destroying the local capacity to produce importable goods, DR will decline by more than the rise in EP, at least initially, and G will decline ($v < u$). This sort of dynamics was a key factor in Mexico's export-oriented industrialization puzzle, discussed below.

Table 2 presents the case of valuation shocks. We start with a pure TOT gain that raises a country's export prices without affecting its import prices

10. This identification problem can also be addressed using equation 9. A decline in DR associated with a decline in G but no change in IR must reflect a supply contraction, while a decline in DR associated with a rise in IR but no change in G must reflect a demand expansion. Finally, a decline in DR associated with a decline in G and a rise in IR most likely reflects an excessive demand expansion giving rise to a supply contraction.

or its export volumes, hence without altering RIP. As a result, NEP would rise, while EP would remain constant, consistent with equation 11. If the TOT gains are not spent, neither output (G) nor imports would be affected in the first round, NEL (the difference between nominal import and nominal export growth) would decline in line with the rise in nominal exports, and EL (the difference between real export and real import growth) would remain unchanged. If the TOT gains are fully spent, the impact will be the same as that of a domestic demand shock.[11] The analysis of South America's commodity puzzle (particularly the case of Argentina) illustrates the macroeconomic impacts of TOT shocks given procyclical policy responses.

Our final case is a valuation shock that raises the price of local imports relative to the price of world imports without altering the price of local imports relative to local exports (that is, assuming that the price of local exports also rises relative to the price of world exports). That would increase a country's RIP without changing its TOT. In this case, in line with equations 11–13, NEP would rise, while NDR would fall by a similar amount, leaving G unaffected; EP and DR would also remain unchanged. Thus pure RIP-induced valuation changes will result in offsetting fluctuations in NEP and NDR, but they will have no impact on output growth or any of its real components.

Decomposing Latin American Growth Puzzles

In this section, we use the growth decomposition and identification strategies discussed above to explore the four Latin American growth puzzles. We use both year-to-year decompositions (based on backward-looking moving averages) and full-period decompositions (yearly averages for the entire period or subperiod). Throughout the section, we use real (rather than nominal) growth decompositions as the workhorse equation (including, when needed, the associated TOT effects) to better separate volume from price (especially TOT) effects. In the case of Mexico, we include the nominal version of the growth decomposition to gain additional insights.

11. Note the fundamental difference between the nominal and real accounting of savings: an unspent TOT windfall raises nominal domestic savings but leaves real domestic savings unchanged. Because spending the windfall may trigger a macroeconomic disequilibrium by raising domestic demand, a real (rather than nominal) measurement of savings can help promote a more prudent domestic policy response (see De la Torre, Filippini, and Ize, 2016).

Latin America's Import-Substitution Industrialization Puzzle

Many Latin American countries embarked enthusiastically on a growth strategy based on ISI during the 1960–81 period. Yet only a few registered growth rates above those of the world; the majority lost ground. What explains these ample differences in growth experiences across Latin America? Because ISI looked inward and thus thrived on rapidly expanding local markets, the size of the country (measured by population) is often considered to have been the key determinant of success—inasmuch as larger countries are better able to capture the productivity gains associated with labor reallocation from rural-based agriculture to urban-based manufacturing.[12] Indeed, the two countries with the best growth performance (relative to the world) in this period were Brazil and Mexico, the largest countries in the region. However, mid-sized Colombia and smaller Ecuador also delivered strong growth under ISI, especially in the 1970s, while larger Argentina and Venezuela did not. Therefore, there must have been other determinants of ISI success that were equally or even more important than sheer size.

To shed light on these questions, we divide Latin American countries that embraced ISI into two groups: those with positive growth relative to the world in the ISI period (Brazil, Colombia, Mexico, and Ecuador) and those with negative growth (Argentina, Bolivia, Chile, Peru, and Uruguay).[13] Real growth decompositions are then applied to the average of the two groups and to their difference (the fast-growers minus the slow-growers). As shown in figure 5, for the whole group average, trend G follows a mix of DR and EP; however, when we look at the difference, G follows EP but not DR. Let us elaborate.

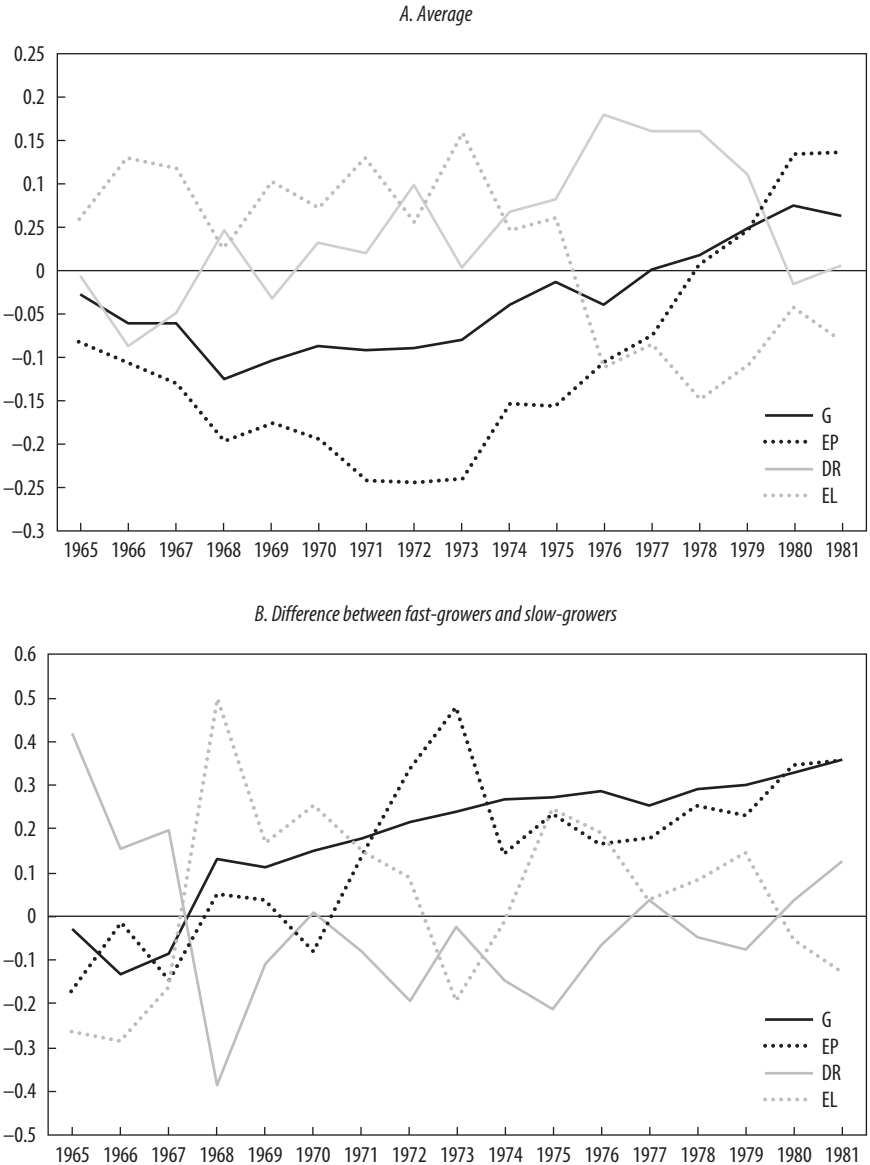
The fact that the entire group experienced upward-trending DRs matches the conventional view of ISI as a positive internal supply shock that translated into inward-looking, domestically led growth (where output growth outpaced import growth).[14] However, the fact that the growth decomposition for the differences between the two subgroups shows G to have followed EP rather

12. McMillan, Rodrik, and Sepúlveda (2017) define such cross-sectoral productivity growth as structural change.

13. We set aside Venezuela, because of missing trade data in the 1960s and early 1970s, and the Central American countries, which followed rather different trade dynamics.

14. This conventional view is illustrated by Pagés (2010), who provides evidence of large productivity gains during ISI, associated with the migration of labor from the low-productivity agricultural sector to the more productive industrial sector. Sanguinetti and Villar (2012) show that these gains dissipated with the exhaustion of the rural-to-urban migration process.

FIGURE 5. Latin America: Growth Decomposition for the ISI Period



Source: Data from World Bank, World Development Indicators database.

Note: Latin American countries that embraced ISI are divided into two groups: those with positive growth relative to the world (Brazil, Colombia, Mexico, and Ecuador) and those with negative growth (Argentina, Bolivia, Chile, Peru, and Uruguay). The growth decompositions are applied to the average of the two groups in panel A and to their difference (that is, the fast-growers minus the slow- growers) in panel B. Each growth component is calculated as the log of the yearly average over a backward-looking moving window (a five-year window between 1965 and 1969 and a ten-year window thereafter).

than DR implies that the countries that delivered higher growth rates under ISI did so not because of a thriving inward-looking manufacturing production but rather because more dynamic exports relaxed the foreign exchange constraint. In terms of the shock analysis of the previous section, the fact that DR was mostly in positive territory for the sum of countries (panel A) implies that all countries benefited from a domestic supply shock, as high protection boosted their supply of importable goods. At the same time, the fact that it is EP (rather than DR) that explains the growth differential between the fast- and slow-growing countries (panel B) shows that the success or failure of ISI ultimately hinged on countries' export capacity.

In other words, and contrary to common belief, returns to scale in manufacturing (which would show up as a DR differential) were not the main driver of differences in growth performances. Instead, what made the difference was the availability of foreign exchange (it shows up as an EP differential), which was needed to finance the imports of intermediate and capital goods required to sustain the expansion of the highly protected, import-intensive manufacturing sector. Insofar as manufactures were sold in the domestic market (or in the similarly protected subregional common markets, such as the Andean Pact countries), the exports that really counted to prop up ISI were the non-manufacturing ones, that is, the commodity exports.[15] This leads to an additional and crucial conclusion, namely, that ISI failed in one of its main objectives: rather than reducing commodity dependence, ISI intensified it.

As we show in the next section, in addition to running into a dead end, ISI planted the seeds (both trade- and macroeconomic-related) for the catastrophic growth collapse that followed during the 1980s debt crisis and that prevented the region (Mexico in particular) from rapidly capturing the dividends from trade liberalization. On the trade side, ISI not only undermined firms' capacity to compete on a worldwide basis, it also prevented the strengthening of the business environment (including institutions) needed to support the improvement in competitiveness under a liberalized trade regime. On the macroeconomic side, the loss of macroeconomic control at the end of ISI (caused by a rearguard attempt to boost flagging growth through a public spending surge) led to the debt crisis and burst of inflation that undermined growth and set the stage for the lengthy Stabilization Cycle that followed (De la Torre and Ize, 2020).

15. In the case of Ecuador, the relaxation of its foreign exchange constraint took place in the 1970s and resulted from a major resource (petroleum) discovery and (petroleum price–driven) improvement in its terms of trade. Ecuador became a major oil exporter in the early 1970s; Colombia did so in the mid-1980s.

Mexico's Outward-Oriented Industrialization Puzzle

Mexico best illustrates the lasting cost of the "miracle growth" experienced during the ISI period. Mexico's post-ISI growth collapse turned it into the second-worst performer (after Venezuela) in the region over the past forty years. This constitutes a major puzzle, especially when one considers Mexico's rather impressive consolidation of macroeconomic stability and successful shift toward an export structure dominated by manufactures.[16]

Applying the growth decomposition method to unravel this puzzle unearths three main story lines that help explain Mexico's disappointing post-ISI growth record, which have not received sufficient attention in the literature: a decline in G driven by a collapse in DR following Mexico's trade liberalization; the timing of China's surge (a negative external demand shock), which hit Mexican exports hard just when they were beginning to thrive; and an excessive reliance on the inherently slow-growing, mature U.S. market (another external demand constraint). The rest of this section elaborates.[17]

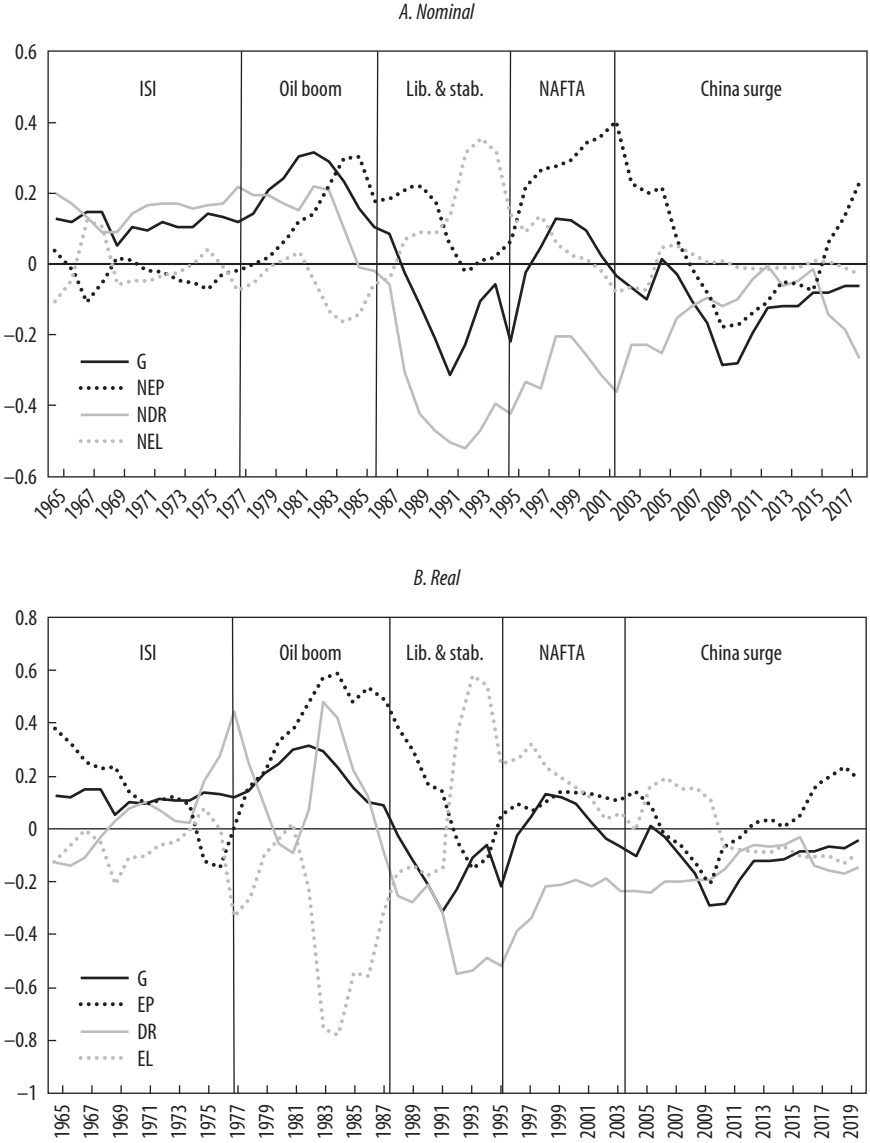
Figure 6—which decomposes Mexico's growth based on equations 7 and 10—gives a bird's-eye perspective. Five subperiods may be identified: ISI, oil boom, trade liberalization and stabilization, NAFTA, and the China surge. The nominal and real decompositions are quite similar except that NAFTA had a much larger nominal than real impact on the export pull, reflecting the shift toward higher-priced manufacturing exports. Inversely, reflecting off-setting oil price fluctuations, the nominal impact of the oil shock was much smaller than its real impact.

Both decompositions clearly show that G closely followed EP after ISI. G and EP rose together with the oil boom, fell during the liberalization and stabilization period, rose again with NAFTA, fell with the start of the China surge, and recovered (though modestly) after the global financial crisis of 2008–09. Remarkably, however, G systematically lagged EP as DR fell sharply starting in the early 1980s and has remained depressed (in negative territory) up to today.

16. Mexico is one of the few Latin American countries that has earned investment-grade status and, according to the Atlas of Economic Complexity, it ranked first in the region and nineteenth in the world (ahead of Canada and Spain) in "economic complexity" (https://atlas.cid.harvard.edu/rankings, accessed November 2020). That alone should have led to higher growth, according to the findings of Hausmann and others (2014), yet it did not.

17. Ize (2019a, 2019b) provides additional discussion of and insights into Mexico's growth.

FIGURE 6. Growth Decompositions for Mexico



Source: Data from World Bank, World Development Indicators database.

Note: Each growth component is calculated as the log of the yearly average over a backward- looking moving window (a five-year window between 1965 and 1969 and a ten-year window thereafter).

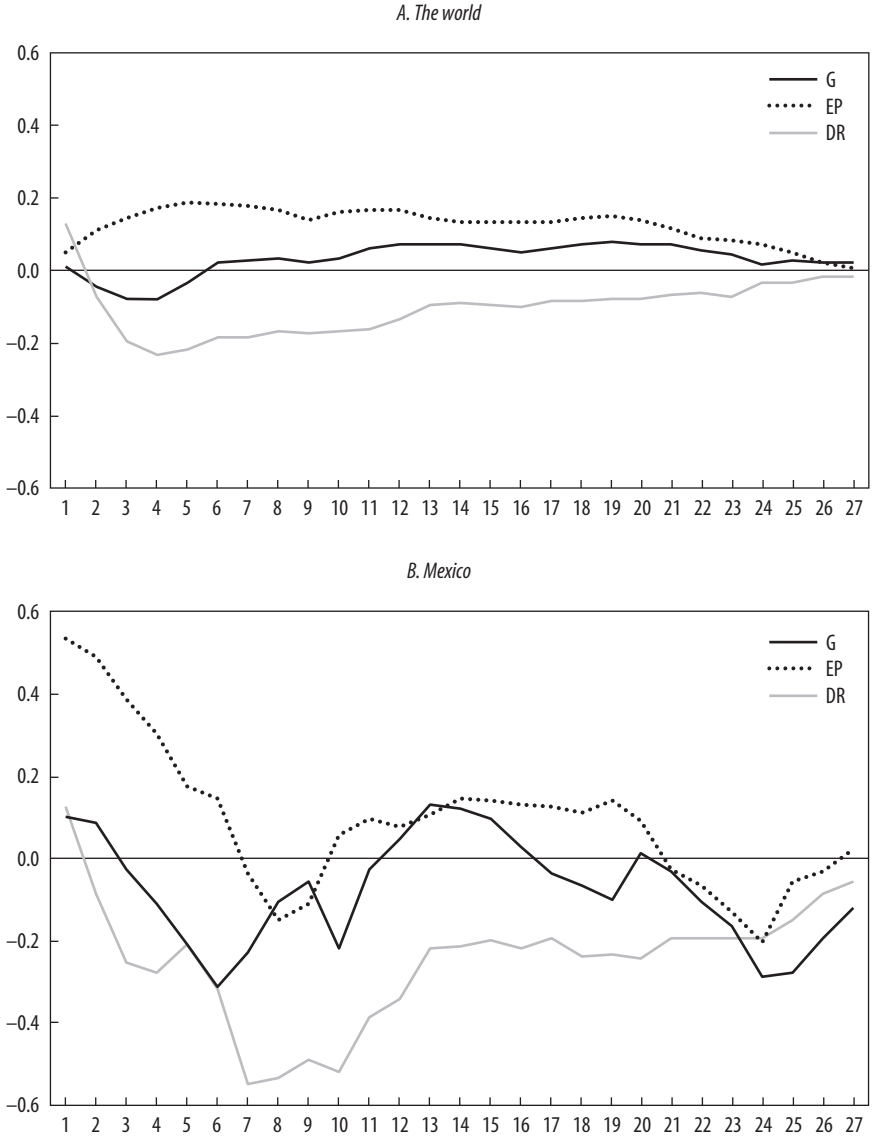
Mexico's DR collapse was indeed atypically strong and prolonged. Figure 7 presents growth decompositions (all expressed in real terms) that compare Mexico with thirty countries that experienced similar trade surges between the late 1970s and the early 2000s. All such experiences are put together and synchronized by setting the initial dates of the trade surge to $t = 0$.[18] Figure 7 shows the averaged results of this exercise for the thirty countries and for Mexico. For the world sample, trade surge episodes typically led to an initial fall in G, driven by a decline in DR (reflecting an import boom that displaced the local production of importable goods) that more than offset the increase in EP.[19] Over time, however, G rose, driven by an increase in EP (as exporting activities expanded) and eventually also in DR (arguably reflecting a boost in productivity that lifted output growth above import growth). Remarkably, the full impact of the trade surges lasted for nearly thirty years, on average.

Mexico deviated significantly from the world's average in terms of EL, EP, and DR. With regard to the EL, instead of opening international trade within a stable macroeconomic environment (a flat EL), as was the case for most of the other countries in the sample, Mexico liberalized its trade under extreme macroeconomic turbulence (figure 8, panel C). A period of depressed domestic demand (a very negative EL) under trade liberalization in the 1980s and early 1990s turned into a demand boom under the exchange rate–anchored stabilization (a surge in EL) in the 1990s. With regard to EP, it fell (instead of rising) in the initial eight years after the launch of trade liberalization (figure 8, panel A). While the fall in EP resulted largely from the decline of Mexico's oil exports (an event that bears no relation to trade liberalization policies), it also reflected the strong real exchange

18. The starting date for Mexico is 1986. The other thirty countries in the sample, by region, and the starting dates of their trade liberalization episodes are as follows: Latin America: Argentina (1979), Chile (1975), and Costa Rica (1988). Eastern Europe: Hungary (1993), Poland (1994), Romania (1997), Slovenia (2003), Czech Republic (1995), and Slovak Republic (1999). Southern Europe: Italy (1983), Portugal (1984), and Spain (1983). Northern Europe: Austria (1974), Denmark (1974), France (1974), Germany (1979), Ireland (1976), and Switzerland (1975). Other high-income economies: Canada (1983), New Zealand (1988), and United States (1983); East Asia: China (1983), Hong Kong (1979), Indonesia (1972), Malaysia (1972), Philippines (1977), Singapore (1978), and Thailand (1981); Other: India (1991) and Tunisia (1974).

19. The trade surge events in our sample were selected based on observed trade patterns (sustained divergences between EP and DR) rather than on specific trade liberalization policies. In most (if not all) cases, however, trade surge periods broadly coincided with the implementation of trade liberalization policies.

FIGURE 7. Growth Decompositions for Trade Liberalization Episodes



Source: Underlying data from World Bank, World Development Indicators.

Notes: Each growth component is calculated as the log of the yearly average over a backward-looking moving window (a five-year window between 1965 and 1969 and a ten-year window thereafter). Some of the data for the initial years after the start of trade liberalization are missing for some of the Eastern European countries. See footnote 18 for a list of the countries in the sample and their starting dates.

FIGURE 8. Growth Decompositions for Trade Liberalization Episodes, by Variable

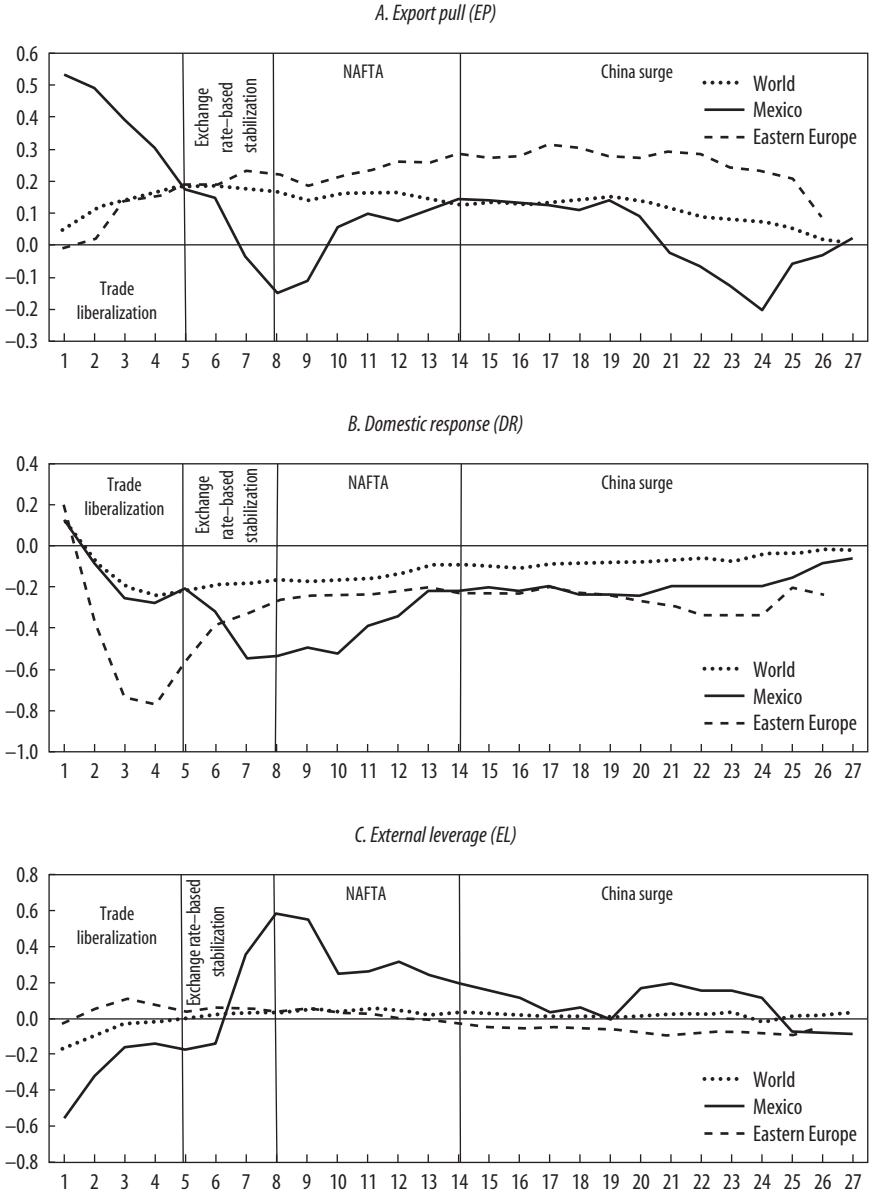
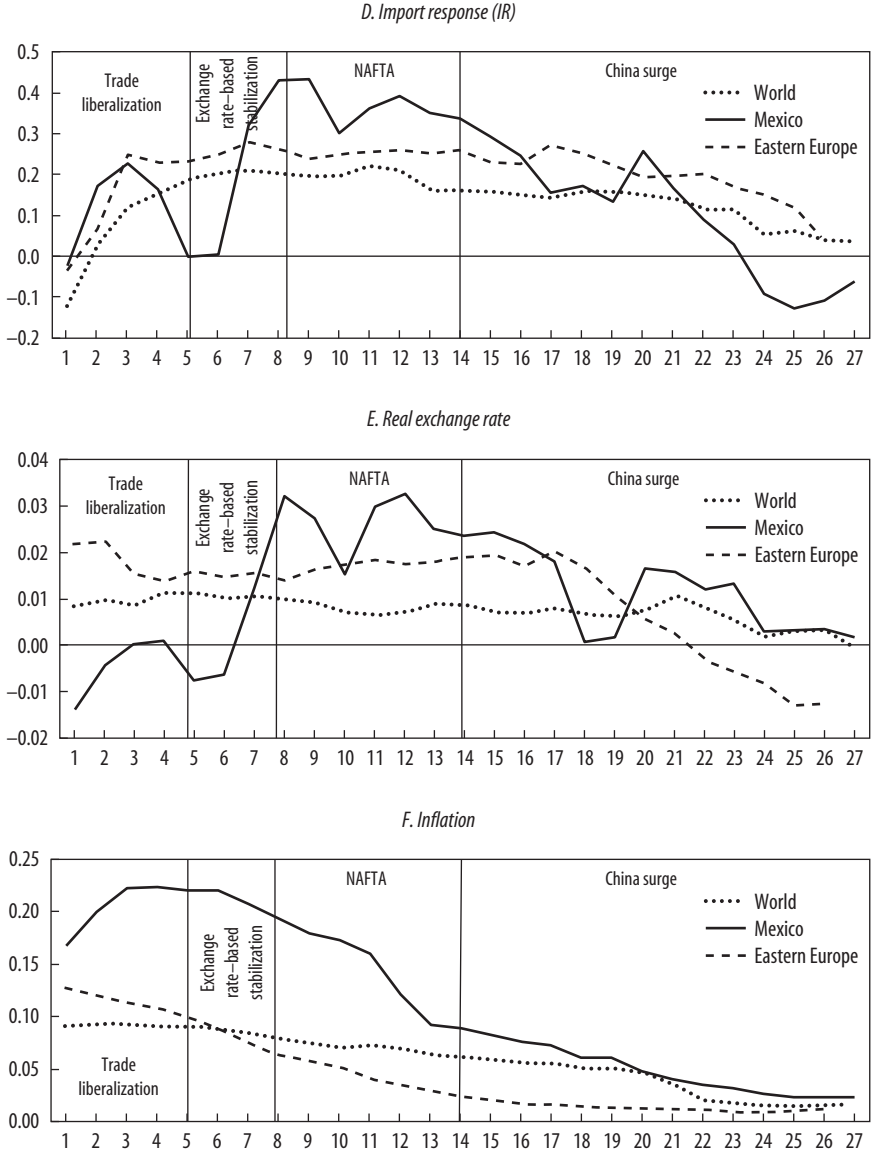


FIGURE 8. Growth Decompositions for Trade Liberalization Episodes, by Variable[a] (*Continued*)



Source: Data from World Bank, World Development Indicators.

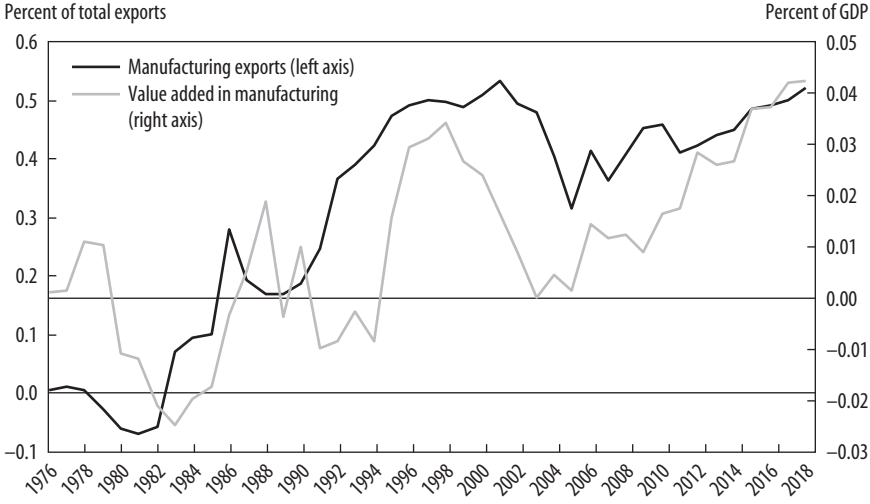
Notes: Each growth component is calculated as the log of the yearly average over a backward-looking moving window (a five-year window between 1965 and 1969 and a ten-year window thereafter). Some of the data for the initial years after the start of trade liberalization are missing for some of the Eastern European countries. See footnote 18 for a list of the countries in the sample and their starting dates. The real exchange rate is the bilateral rate with respect to the U.S. dollar; it is obtained as the log of 1 plus the average yearly growth rate of the real exchange rate index over five- and ten-year backward- looking windows. Similarly, the inflation rate is obtained as the average yearly rate of change over the same five- and ten-year backward-looking windows of the GDP deflator.

rate appreciation that accompanied inflation stabilization (panels E and F). Mexico's EP rose after the start of NAFTA but fell again after China's entry into the World Trade Organization (WTO). Finally, with regard to Mexico's DR, which initially had fallen as much as the average of the world episodes, it subsequently collapsed with the domestic demand boom that accompanied the exchange rate–based disinflation process (panel B). While DR recovered after NAFTA, it has remained substantially below that of the comparator trade liberalization episodes.

Remarkably, the path followed by Mexico's DR was broadly comparable to that of Eastern Europe in the 1990s, following its commercial integration with Western Europe after the fall of the Iron Curtain (figure 8, panel B). This suggests that Mexico's trade liberalization was particularly painful because, as in Eastern Europe, it took place quite rapidly after many decades of very high protection. The result was an import boom (the hump in IR shown in panel D) that crippled growth for a prolonged period through the destruction of a vast range of admittedly inefficient industries that had thrived during ISI by producing importable goods and services for the local, sheltered market. Moreover, the supply-side effects of trade liberalization came for Mexico with a much longer lag, partly because Mexican firms' capacity to adjust and compete in global markets was undermined by the aforementioned real exchange rate appreciation and by the financial turbulence experienced in the late 1980s and 1990s, including the 1995 "Tequila crisis."

Mexico's inability to better harness the dividends of trade liberalization can be further appraised by comparing the evolution of manufacturing exports as a share of total exports with that of value added in manufacturing as a share of GDP, both relative to Latin American averages (see figure 9; note the very different scales of the left and right axes). Between the mid-1980s (when Mexico started liberalizing its trade) and 2000 (when China started surging), an almost 50 percent increase in Mexico's manufacturing share of exports translated into only a 5 percent increase in the share of GDP, even after correcting for the regionwide declining trend in manufacturing. Thus, while trade liberalization had a large impact on Mexico's trade structure, its impact on the Mexican economy was quite limited. The increase in the value added of exportable manufactures was largely offset by a reduction in the value added of importable manufactures, as imports displaced local production. The fact that the increase in the value added of manufacturing exports was small relative to the economy clearly implies that the local content of exports was limited.

FIGURE 9. Mexico: The Economic Relevance of the Boost in Manufacturing



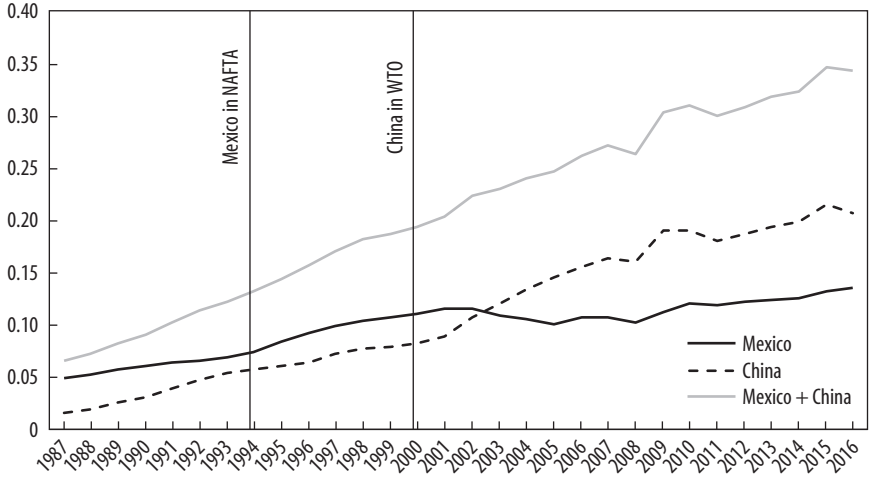
Source: Data from World Bank, World Development Indicators database.
Note: To control for different trends, the two variables in the chart are calculated by subtracting the Latin American average from Mexico's values.

Consider now the collapse of Mexico's EP during the Commodity Cycle. It is mainly attributable to the stiff competition from Chinese manufactures in third markets, chiefly the United States. In effect, Mexico's share in U.S. imports, which had been rising in the wake of NAFTA, contracted as China surged (figure 10). This suggests that it was the timing of Mexico joining NAFTA—and not NAFTA per se—that was behind the poor economic performance during this subperiod. Had Mexico joined NAFTA, say, ten years earlier, its manufacturing export expansion would have had more time to consolidate and would thus have provided a firmer foundation for Mexico's economic growth. That would, in turn, have enabled Mexico to fare better under the China surge.

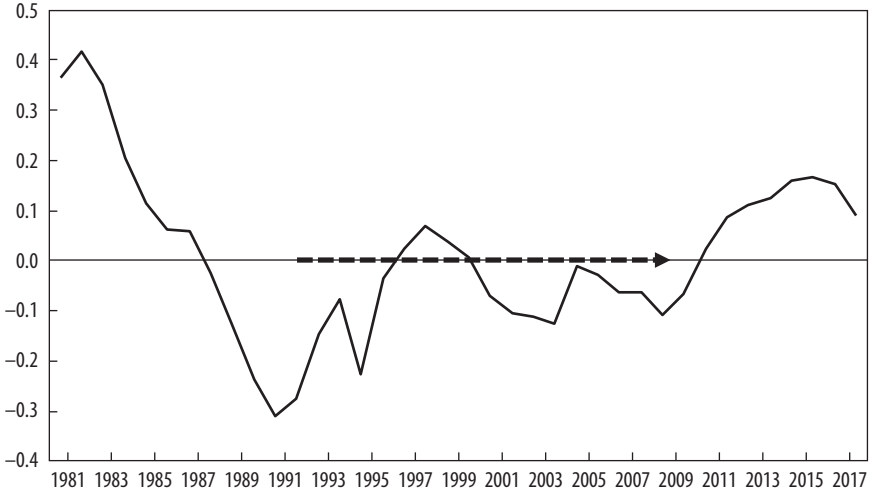
An aggravating factor for Mexico has been its unduly high dependence on the United States, a mature economy that has been growing less than the world economy, and within the United States, on the automotive sector, itself a mature sector with a relatively low growth elasticity. This can be checked in the second panel of figure 10, which shows Mexico's growth decomposition relative to the United States' instead of the world's (that is, the difference

FIGURE 10. Drivers of Mexico's Collapsing Export Pull in the Commodities Cycle

A. Shares of U.S. import market



B. Mexico's growth relative to that of the United States



Sources: Data from World Bank, World Development Indicators database, and U.S. Census Bureau.
Note: Panel B graphs the difference between the growth decompositions of Mexico and the United States.

between the growth decompositions of Mexico and the United States). Mexico's G remained close to zero from 1995, when Mexico joined NAFTA, to 2009, the aftermath of the global financial crisis that affected U.S. and Mexican growth asymmetrically.[20] For the most of the last twenty-five years, therefore, Mexico's G has followed all too closely the United States'. As the latter has tended to grow more slowly than the world's, it has systematically held Mexico's growth below what would have otherwise been expected from an emerging economy. As Mexico's population has grown faster than that of the United States, tightly linking Mexico's growth to the U.S. market has resulted in Mexico's per capita income losing ground relative to that of the United States.

While the U.S. absorption of Mexican exports has grown over the last ten years, lifting EP, this has not been sufficient to drive Mexican growth into positive territory because of a simultaneous fall in DR (see figure 6). Thus the surge of Mexican imports and the limited value added of Mexican exports continue to constrain Mexican GDP growth. The country's deep regional fragmentation between the more developed, outward-oriented industrial north and the inward-oriented, subsistence agriculture–dependent south further contributes to containing DR and hence G. Other non-trade-related factors, including the low productivity growth of Mexico's large informal sector, have no doubt also contributed to depressing Mexico's DR.[21]

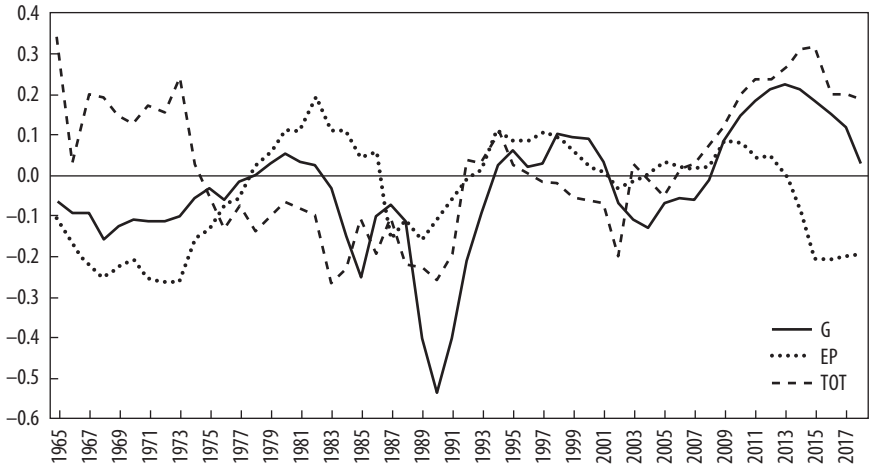
South America's Commodity Puzzle

The heavy reliance on commodities has shown no signs of abating since the 1960s for most South American countries. In fact, South America's GDP growth tracked the growth of export volume during the Trade and Stabilization Cycles but became more tightly linked to the growth of export prices (that

20. While Mexico's recent increase in exports suggests a welcome ability to adapt and reconstruct export niches while taking advantage of China's rising wage costs, Mexico's DR has again declined in recent years, suggesting that the rise in exports was partially or totally offset by a concomitant rise in imports.

21. The large and persistent effects of trade liberalization on the DR highlighted here are consistent with explanations of Mexico's low growth based on microeconomic distortions. Levy (2018), for instance, argues that Mexico's growth has been stunted by major misallocation of physical and human capital resulting from flawed tax, labor, and social insurance policies, together with malfunctioning institutions related to contract enforcement and competition. Mexico's DR would surely have fallen less, and less persistently, had microeconomic distortions of this type been less severe.

FIGURE 11. South America's Growth, Export Pull, and Terms of Trade



Source: Data from World Bank, World Development Indicators database.

Note: G and EP are calculated as the log of the yearly average over a backward-looking moving window (a five-year window between 1965 and 1969 and a ten-year window thereafter). TOT is the log of the average yearly change of the terms of trade over a ten-year backward-looking window.

is, to the region's terms of trade) during the Commodity Cycle (figure 11). Despite continued and intensifying commodity dependence, not all South American countries have fallen prey to what Sachs and Warner (2001) call the natural resource curse. Chile, first and most notably, and Peru more recently, have registered robust growth rates, which signal some sort of immunization against the curse. By contrast, symptoms of the curse show up clearly in the secular decline in GDP relative to world GDP in Venezuela and Argentina. What explains these heterogeneous results? And how sustainable is Chilean-style commodity-dependent growth?

It is often argued that the answer lies squarely in different abilities to diversify exports (within and outside commodities) and move up the complexity ladder. While there is obviously much to that claim, here we add a different insight, namely, the key drivers behind the heterogeneity in growth performances across commodity-producing countries are the rate of expansion in export volumes (that is, external supply shocks) and the ability to avoid excessive procyclicality in spending during commodity booms (that is, domestic demand shocks). To illustrate these points, we calculate TOT based

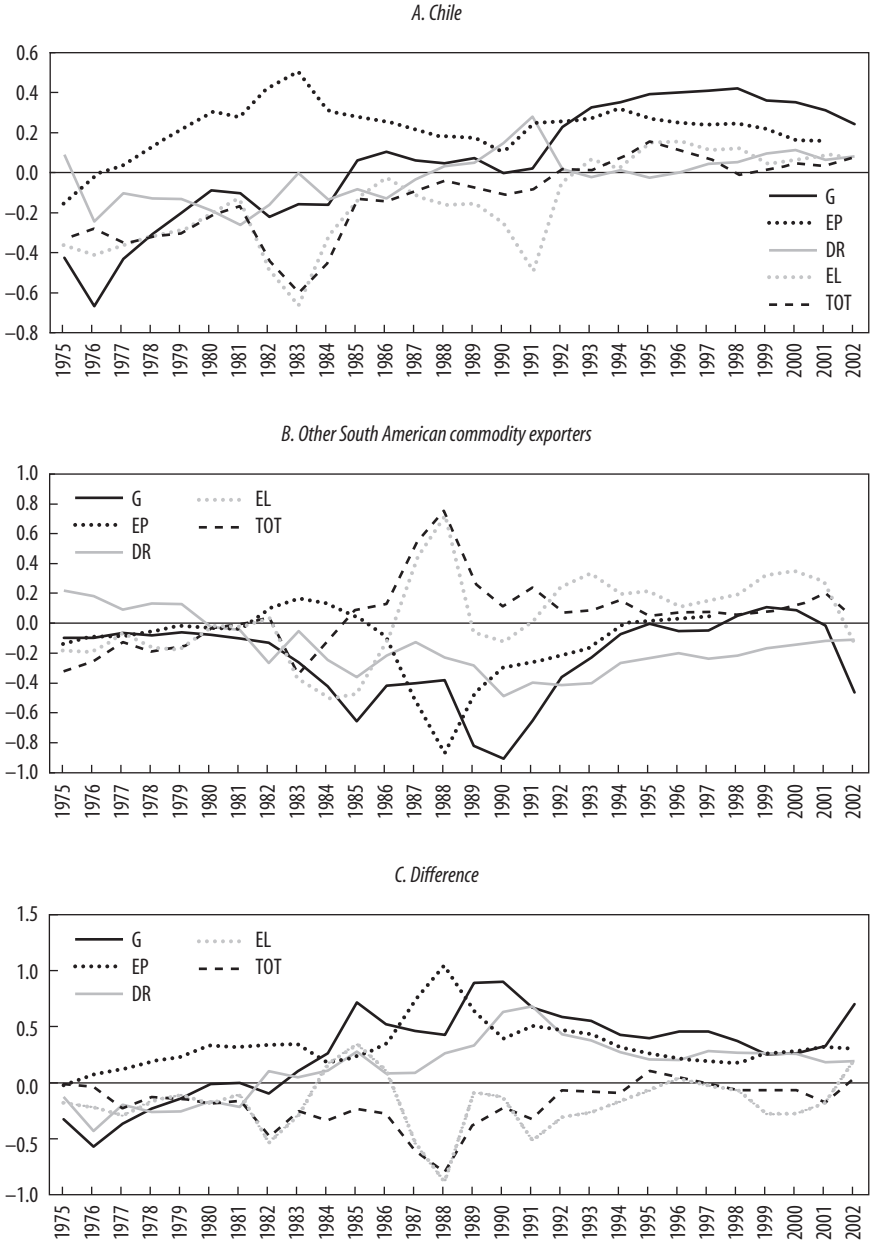
on equation 14 and focus on the contrasting cases of Chile and Argentina over the Stabilization and Commodity Cycles.

Consider first the case of Chile relative to other South American commodity exporters. As depicted in figure 12, Chile's strong and rising G during the Stabilization Cycle (the 1990s) was the result of increases in both EP and EL. The rise in EP reflected Chile's capacity to boost the volume (real growth) of its commodity exports, particularly copper. The rise in EL reflected the spending effects of the TOT gains resulting from soaring copper prices. In contrast, other South American commodity exporters (namely, Argentina, Bolivia, Peru, Uruguay, and Venezuela) experienced a pronounced growth dip during this period, associated with collapses in EP and DR. Yet these exporters also experienced gains in their TOT comparable to Chile's. As a result, the differential G between Chile and the other South American commodity exporters resulted from a higher EP and DR. The former reflected Chile's ability to develop its export capacity better than its neighbors; the latter, Chile's superior macroeconomic policies, which helped avoid the growth-impairing effects of TOT or debt-driven spending binges that led real imports to grow faster than both real output and real exports (a toxic, prolonged coexistence of a positive EL with a negative DR) in other South American commodity exporters.

Another question that needs addressing is why Chile's growth lost ground during the Commodity Cycle (the 2000s) to growth in Bolivia and Peru, the two neighboring countries with a similar export concentration in mineral commodities. Figure 13 shows that Chile's declining growth reflected a major fall in export volume (EP moved to negative territory), partially offset by a rise in aggregate domestic demand (EL), itself only partially matched by rising TOT gains. In other words, Chile's growth slowed in the 2000s despite a stimulation of demand because of a sharply contracting EP. Bolivia and Peru went through a milder decline in export volume (EP stayed in higher positive territory for a longer time) and a comparable rise in export prices. As the latter more than offset the former, growth in Bolivia and Peru accelerated. The difference in the two growth decompositions confirms that the main factor explaining Chile's weaker growth performance in the 2000s was the decline in export volume.

Chile's changes in growth performance and EP patterns over the Stabilization and Commodity Cycles point, therefore, to challenges that are specific to South American commodity producers, particularly the more specialized ones. Absent a vigorous process of export diversification, these countries' ability to sustain high growth hinges on their ability to sustain rising export

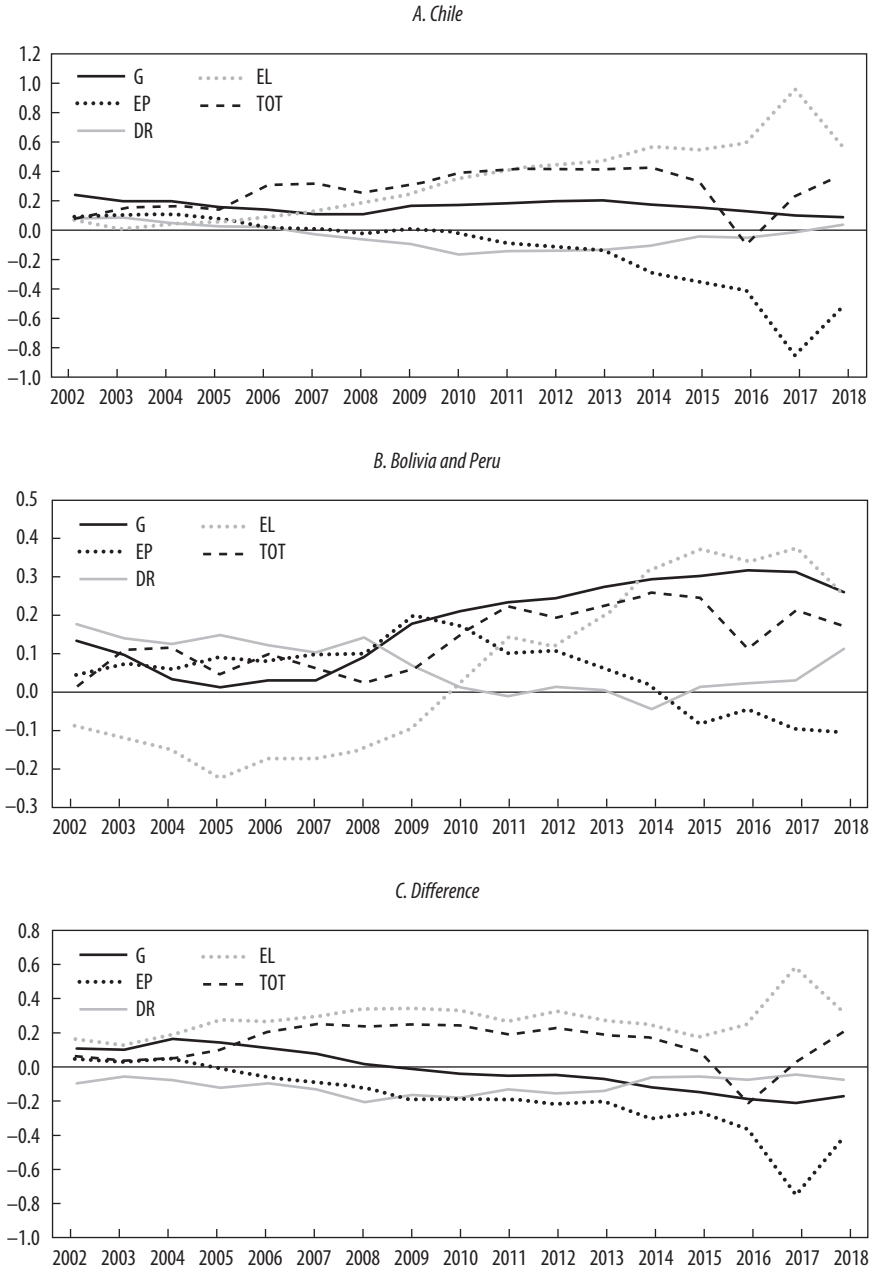
FIGURE 12. Growth Decomposition for the Stabilization Cycle: Chile versus Other Commodity Exporters, 1975–2002



Source: Data from World Bank, World Development Indicators database.

Note: Each growth component is calculated as the log of the yearly average over a ten-year backward-looking moving window. Other commodity exporters include Argentina, Bolivia, Peru, Uruguay, and Venezuela.

FIGURE 13. Growth Decomposition for the Commodity Cycle: Chile versus Bolivia and Peru, 2002–18



Source: Data from World Bank, World Development Indicators database.
Note: Each growth component is calculated as the log of the yearly average over a ten-year backward-looking moving window.

volumes. Otherwise, growth is bound to falter, unless fortuitously rescued by TOT windfall gains.[22]

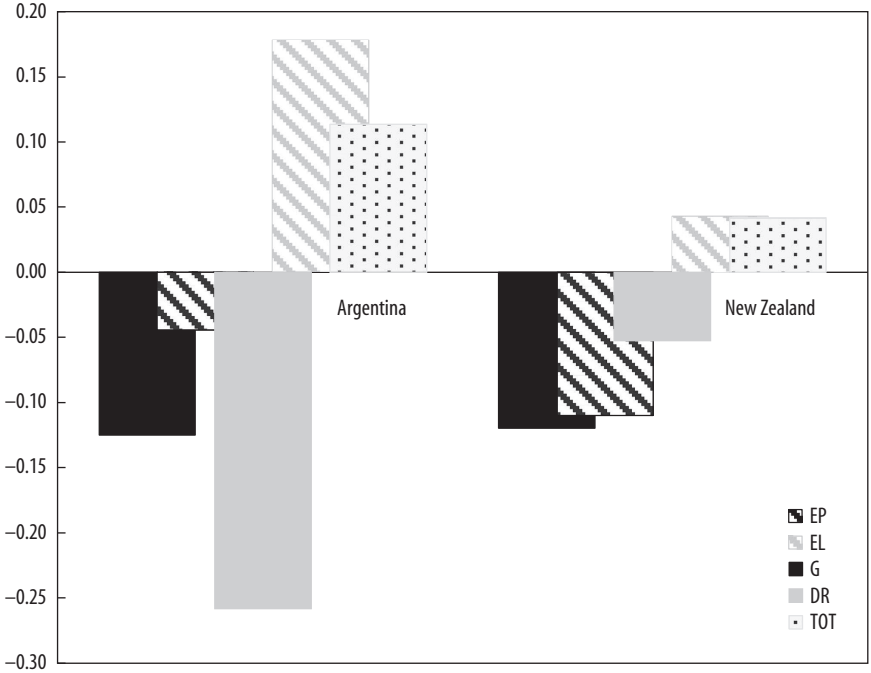
Consider now the case of Argentina. Why has this country, unlike Chile, been chronically unable to break free from its secular downward GDP trend? To explore this question, it is useful to compare Argentina and New Zealand, insofar as both countries specialize in agricultural commodities and hence exhibit similar growth spectra over the entire 1960–2018 period (figure 14). In both cases, the negative G (although more negative in the case of Argentina) was paired with a negative EP, which again points to commodity export volume stagnation as the key culprit of decaying growth.

Demand factors were also involved. As shown in the figure, Argentina's growth spectrum differs from New Zealand's in its much larger positive EL coexisting with a more negative DR, the toxic combination mentioned earlier. This combination reflects episodes of unsustainable domestic demand growth that weakened the economy's ability to steadily expand faster than its imports, as the resulting bouts of inflation and real exchange rate appreciation gave rise to a negative domestic supply shock. Unlike New Zealand, whose negative G appears largely supply-related (associated mainly with a negative EP), Argentina's negative G can be explained by the growth-impairing effects of domestic demand excesses. Thus it is reasonable to conclude that Argentina's weak macroeconomic control has had a substantial and persistent negative impact on its growth.

The adverse effects of macroeconomic policy procyclicality on growth are further borne out by the dynamics of the growth components during the Stabilization and Commodity Cycles (1990–2018), leading to Argentina ending up with major growth collapses both times. Figure 15 shows that, in the case of Argentina, the growth cycles were dominated by major demand booms and busts. During the booms, imports (IR) surged, the real current account deficits (EL) widened, and domestic responses (DR) collapsed. During the busts, these variables moved in the opposite direction, as spending

22. To be sure, Chile has made important strides toward diversifying within commodities and on the shoulders of commodities. Mandel (2011), for instance, provides evidence of significant upgrading toward higher-quality, higher-value-added minerals in Chile (and Peru). He also shows that, contrary to popular perception, international trade in metals is characterized by a high degree of intra-industry trade, and the room to upgrade within metal goods compares well to other manufacturing exports. Meller (2019) provides similar but more recent evidence of export diversification in Chile, anchored on natural resources (toward forestry products, new varieties of fruit, and so forth). However, these visible inroads toward diversification have not kept export volumes up.

FIGURE 14. Growth Decomposition: Argentina versus New Zealand, 1960–2018



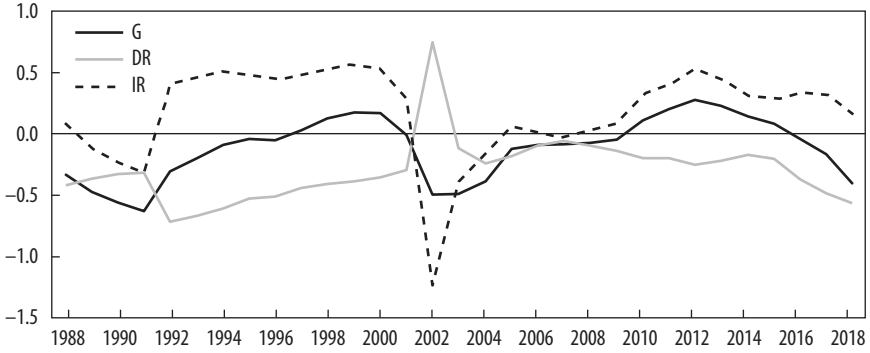
Source: Data from World Bank, World Development Indicators database.
Note: Each of the components of the growth identity is calculated as the log of the average yearly growth rate of that component over the period 1960–2018.

(and imports) had to be drastically compressed. Moreover, the surges in demand (EL) exceeded the rises in TOT, a clear indication of procyclical fiscal and monetary policies. New Zealand also experienced TOT gains during these cycles (though of a smaller amplitude), but its EL did not significantly exceed the rise in TOT, a sign of neutral or countercyclical policies.

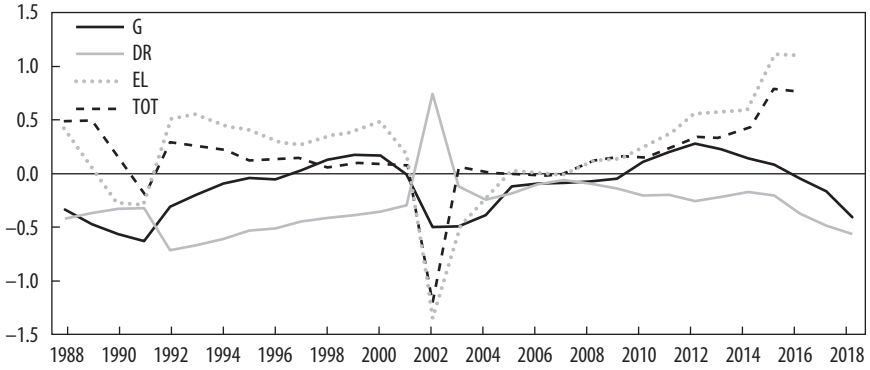
Notwithstanding their clear contrasts, the experiences of Argentina and Chile transmit the same basic lesson, namely, commodity-dependent growth faces two key challenges, one coming from the supply side—the threat of secularly declining export volumes—and the other from the demand side—the need to keep domestic demand under prudent control through countercyclical policies, to avoid the type of growth-impairing macroeconomic turbulence that is typically triggered by volatile commodity prices.

FIGURE 15. Growth Decompositions: Argentina versus New Zealand, 1990–2018

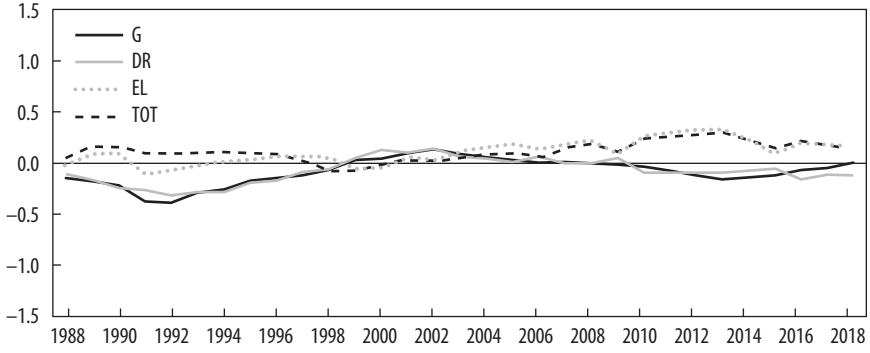
A. Argentina: IR and DR



B. Argentina: EL, DR, and TOT



C. New Zealand: EL, DR, and TOT



Source: Data from World Bank, World Development Indicators database.
Note: Each growth component is calculated as the log of the yearly average over a ten-year backward-looking moving window.

Chile's and New Zealand's more prudent macroeconomic management of commodity price fluctuations compared with Argentina's also brings to the fore the relevance of the quality of underlying institutions and the nature of sociopolitical dynamics, which are deeper determinants of the variables in the accounting decomposition. Commodity-exporting countries with stronger institutions (including fiscal and monetary ones) and less severe social fractures have been better able to avoid the trap of populist overspending during the boom and hence to maneuver along a more efficient adjustment path during the bust. In this sense, the analysis in this paper is consistent with well-documented claims that the natural resource curse is more likely to obtain where institutions are weaker and sociopolitical tensions are more acute.[23]

Central America's Services Puzzle

Central American countries have become producers and exporters of services (see figure 3). Perhaps as a result, the growth decompositions of these countries for 1990–2018 are similar in that the average G for the period has been significantly associated, in magnitude and direction, with DR (figure 16). This suggests a pattern in which, in contrast to the rest of Latin America, the *level* of G appears uncorrelated with EP. However, growth across the Central American subregion has been quite heterogeneous. Over the past thirty years, Panama, the Dominican Republic, and Costa Rica have been the high performers (with their economies expanding, on average, around 2.5 percentage points per year faster than the world economy), while Guatemala, Honduras, and El Salvador have been the low performers (with their economies either meagerly growing ahead of the world economy or, in the case of El Salvador, actually shrinking relative to the world economy).[24] What explains this difference?

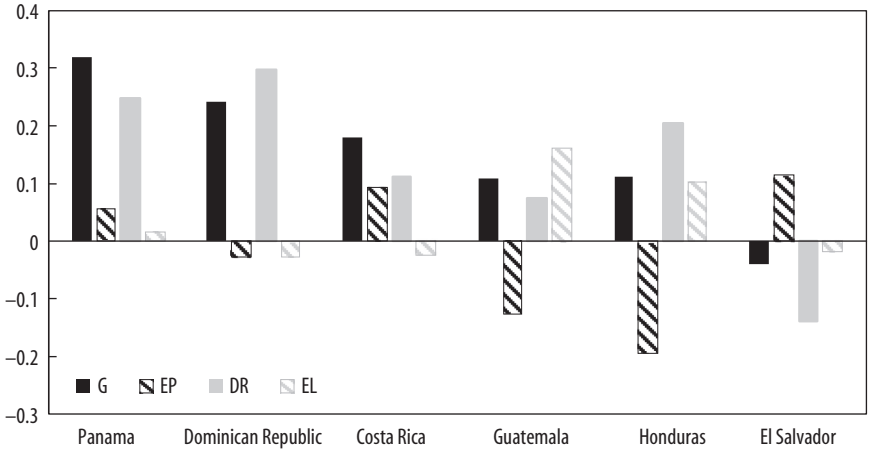
The second panel of figure 16, which shows the difference of the growth decompositions between the high and low performers, provides important elements of the answer. It indicates that the rising output growth advantage of the high performers reflected not just more dynamic exports (a strong and

23. On the links between institutional quality and sociopolitical factors, on the one hand, and the risks of falling under the natural resource curse on the other, see Menaldo (2016), Frankel (2012), and Rosser (2006).

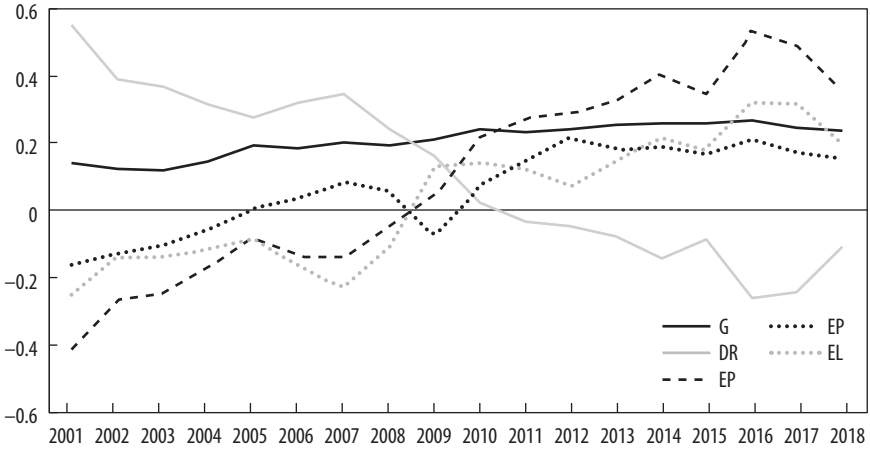
24. El Salvador appears as an outlier in figure 16. Although it also has a relatively high share of services exports in total exports (around 35 percent, versus 40 percent for the average of the other Central American countries), El Salvador has a comparatively much larger share of manufactures in total exports (nearly 60 percent, versus around 40 percent on average for the rest). This makes El Salvador's growth spectrum quite similar to that of Mexico.

FIGURE 16. Central America: Growth Decomposition

A. Growth spectra, 1990–2018



B. High performers minus low performers



Source: Data from World Bank, World Development Indicators database.

Note: Each component of the growth identity is calculated as the log of the average yearly growth rate over the 2002–18 period. The high growth performers comprise Panama, Dominican Republic, and Costa Rica. The low performers comprise Guatemala, El Salvador, and Honduras.

positive EP differential) but also a deeper and more robust international trade integration, involving vigorous exporting *and* importing activity (a contemporaneous rise in the IR differential). Moreover, and importantly, the high performers displayed a clear ability to use external resources in a productive manner (as reflected in a similarly rising and positive EL differential).

Figure 17 provides clues that clarify the dynamics behind the difference in the use of external resources. While both groups of countries incurred trade deficits, the low performers financed their deficits mainly with remittances, whereas the high performers did so with FDI. This implies that the labor force in the high performers stayed at home to work with incoming FDI, whereas a significant fraction of the labor force of the low performers emigrated to work with capital located abroad. The preponderance of FDI inflows (which facilitate learning and technology transfers) is consistent with the superior growth of the high performers. The preponderance of remittance inflows (which help support consumption and thus alleviate poverty) seems to have systematically undercut growth in the low performers.[25] Thus, in terms of the shock analysis presented earlier, FDI inflows, unlike remittances, enabled positive supply shocks that boosted growth.

While a full explanation of the contrast between FDI reliance versus remittance reliance cannot be reduced to a single factor, the marked differences in the rule of law between the two groups of countries stand as a first, rather obvious underlying determinant (figure 18). Services-seeking customers and FDI inflows are both unlikely to rush into a country where the rule of law suffers from major weaknesses.[26]

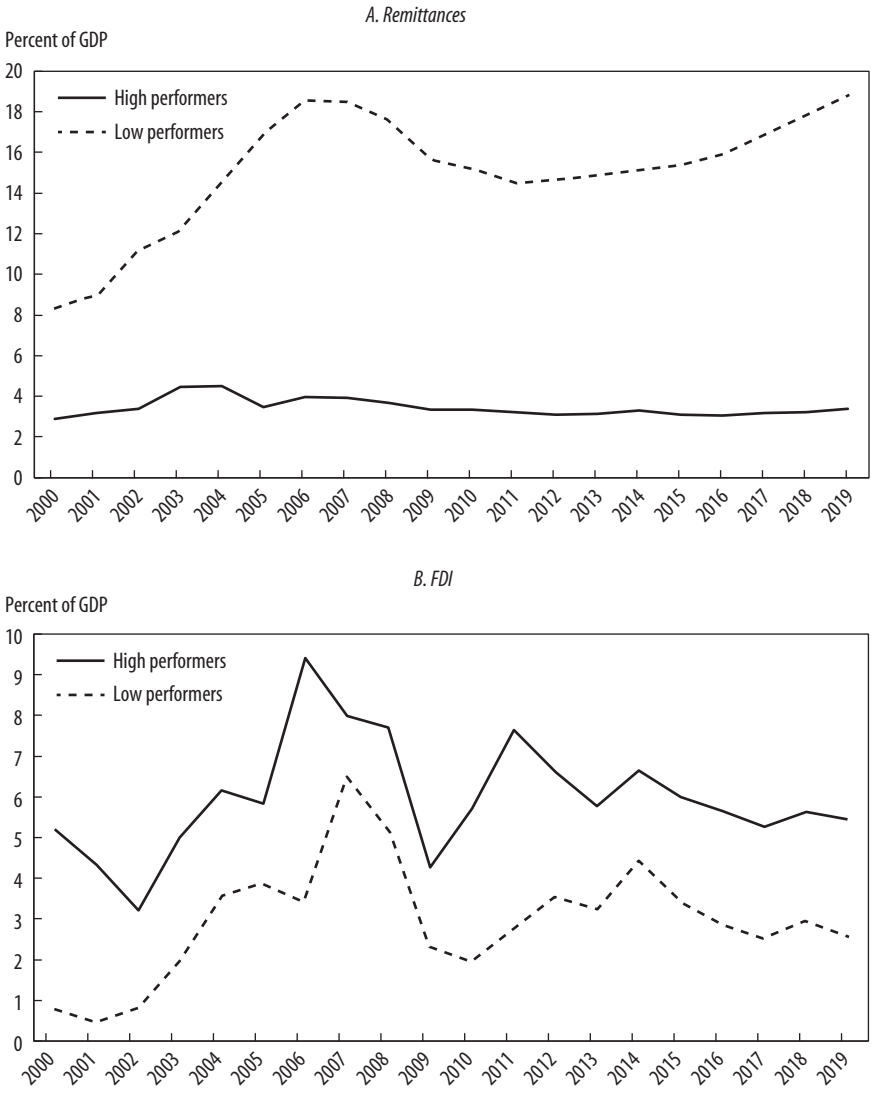
Concluding Thoughts

This paper has explored four Latin American growth puzzles with the help of a growth accounting method that is quite different from, yet complementary to, the conventional Solow-style growth accounting approach. In contrast to the traditional emphasis on factor productivity and accumulation, the analysis here emphasized the roles of macroeconomic policy and international trade. In doing so, it brought to the surface potentially fruitful areas of intersection

25. Shapiro and Mandelman (2014) find adverse productivity effects of remittances, resulting from negative work incentives and weaker firm dynamics. Higher remittances are also associated with lower saving rates, another factor behind slower growth.

26. To be sure, causality between institutional quality and growth runs in both directions. A weak rule of law discourages investment and limits countries' export potential. At the same time, the lack of growth can weaken institutions, partly by dampening the demand for and supply of quality governance.

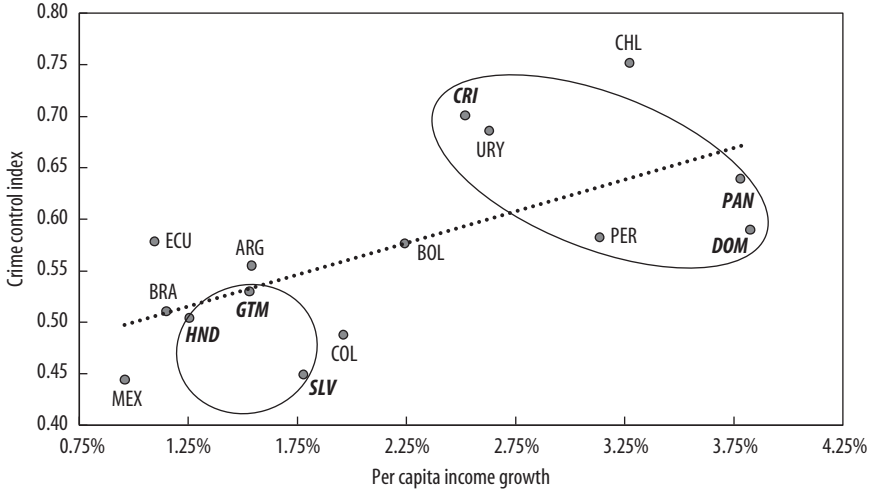
FIGURE 17. Central American Countries



Source: Data from World Bank, World Development Indicators database.

Note: The high growth performers comprise Panama, Dominican Republic, and Costa Rica. The low performers comprise Guatemala, El Salvador, and Honduras.

FIGURE 18. Latin America: Growth and Crime



Sources: Data from World Bank, World Development Indicators database, and World Justice Project.

Note: The per capita income growth rate is the yearly average between 1990 and 2018. The crime control index is the "crime is effectively controlled" indicator from the World Justice Project database for 2018 (a higher indicator corresponds to a better control). Central American countries are in bold italics.

between the two growth accounting approaches. For starters, it raises a key question in growth theory: Is bringing trade to the forefront just a convenient way to illustrate the results of productivity growth, or does trade itself matter for productivity growth? The question may itself be broken down into two parts: Are tradable goods special in terms of their growth implications, and is the size of the trade deficit relevant for growth? The first issue is supply-oriented; the second, demand-oriented.[27]

27. The reasons usually invoked to justify the idea that tradable goods (exportables in particular) matter for growth include superior learning externalities, stronger technological spillovers, larger returns to scale, and greater balance-of-payments resilience (Hausmann, Hwang, and Rodrik, 2005; Hausmann and others, 2014; Rodrik, 2008). The importance of the trade account balance for growth is central to the Thirlwall model and the vast associated macroeconomic-focused literature. It also lies at the core of the Gourinchas and Jeanne (2013) allocation puzzle (that slower-growing economies tend to run trade deficits and thus attract capital inflows, in apparent contradiction to neoclassical growth theory, which predicts the opposite). Work on the microfoundations of this linkage is only just starting to emerge, as illustrated by Brunnermeier, Gourinchas, and Itskhoki (2018), who explain the allocation puzzle based on the interaction between technology (decreasing returns from innovation) and current account imbalances (hence consumption surges).

The paper has shown that both export growth (EP) and import growth (DR) have been critical to Latin America's post–World War II growth saga. A faster expansion of tradable goods (both exportables and importables) is arguably not just the result but also a source of growth. This invites further research on the links between productivity, on the one hand, and trade structure and the relative importance of tradables versus nontradables on the other. This issue is central to the debate over outward- versus inward-oriented development models.

By arguing that avoiding the natural resource curse hinges crucially on the ability to expand export volume, the paper also provides stimulus for further research into the dynamics and underpinnings of the curse. Immunization against the curse appears to be largely about *how much* you export, not just about *what* you export and *how* you export. To be sure, the findings in this paper are consistent with the claim that the curse can be avoided even under deepening commodity dependence; yet doing so may not be sustainable over the long haul.

In analyzing the growth performances of South American commodity producers, the paper also establishes a link between macroeconomic management and growth, not just stability. Because of TOT volatility, commodity producers' growth tends to be shaped by large fluctuations in domestic demand. Hence, prudent spending during a TOT boom can substantially mitigate the growth collapse in the bust, thereby raising longer-term growth. As a result, macrofinancial policies may affect not just cyclical fluctuations but also trend growth.

Finally, and closer in spirit to conventional growth theory, the paper also sheds light indirectly on the growth implications of the rule of law and social policy. An issue deserving further study in this regard concerns the mechanisms through which rule-of-law deficiencies and social fractures boost the growth-impairing effects of fiscal populism during commodity booms, depress DRs in economies oriented toward manufacturing exports, and hinder the inflow of growth-enhancing FDI in service-oriented economies.

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