Accounting for Latin American Growth:  
A Trade and Macro Perspective

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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: (i) the traction on growth exerted by export expansions (export pull); (ii) the growth implications of changes in external imbalances (external leverage); and (iii) the economy’s ability to expand faster than its imports (domestic response). It applies this method to explore the macro and trade drivers behind: (i) the success or failure of Latin America’s import substitution industrialization; (ii) Mexico’s persistent slow growth despite a successful switch to export-oriented industrialization; (iii) the ability or failure of South American commodity exporters to grow smoothly based on commodities; and (iv) the heterogeneous growth performance of Central American services producers and exporters. With different mixes and patterns by sub-region, insufficient export pulls, depressed domestic responses, and bursts in external leverages played major roles in explaining the region’s disappointing growth.

JEL classification codes: 040, 054, F10.

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

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1. Introduction

This paper explores and analyzes the determinants of Latin America’s (LA) uneven economic progress from an international trade and macro perspective that looks at historical trends (the second half of last century) and recent events (the China-induced commodities cycle). The analysis is backed by a novel, macro and trade-based, growth decomposition method that breaks down a country’s growth relative to the world ($G$) into three drivers, an export pull ($EP$) that measures the traction exerted by the country’s exports on its growth; an external leverage ($EL$) that captures the impact on growth of changes in the country’s real exports relative to its imports, hence its use of external resources; and a domestic response ($DR$) that 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 macro- 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 60 years and are, therefore, crucial to consider in 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 1960-1981 period. Comparing the growth decompositions of countries that expanded significantly faster than the world (chiefly Brazil and Mexico) with 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 accentuated the reliance on commodities.

**Mexico’s export-oriented industrialization puzzle** focuses on 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 was due to the high transitional costs associated with the mid-1980s shift from very high ISI-related protection to open international trade, under 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 more recent years, their impact on the country’s growth continues to confront a mix of demand limitations from Mexico’s main destination market—a naturally slow

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1 For the purposes of this paper, LA is composed of Mexico, the Spanish speaking countries in South and Central America (with a few exceptions of smaller countries with more limited trade data), and the Dominican Republic.
growing automotive industry in a mature US 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 commodities 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 commodities-related export outlets (an EP problem) and to develop a proper macro capacity to manage prudently the associated terms of trade volatility (EL and DR problems).

**Central America’s services puzzle** centers on the interplay between services and growth.2 While in all Central American countries growth has been largely inward-oriented (as reflected in a high correlation between DR and G), 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 FDI in the high performers, compared to consumption and remittances in the low performers. The contrast between the high performers’ ability to pull people and equity finance in, and the low performers’ tendency to drive workers out and rely on remittances can, in turn, be linked to radical differences as regard 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 the people needed to generate sufficient export capacity (again an EP problem).

The rest of the paper is organized as follows. Section 2 identifies and characterizes the four Latin American growth puzzles. Section 3 develops and explains the trade- and macro-based growth decomposition methodology. Section 4 applies the method to shed light on the above four Latin American growth puzzles and the issues they raise. Section 5 concludes.

2. **Latin American growth since the 1960s: key features and puzzles**

Relative to the world, Latin America’s growth (G) 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

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2 Throughout this paper, Central America is defined to include all Spanish speaking Central American countries plus the Dominican Republic.
much more volatility, resulting in three pronounced cycles over the last half-century (Figure 1a). During the first cycle (the “Trade Cycle” of 1960-1990), the region underwent deep structural changes in its trade orientation. The upswing phase (1960-1981) 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, and a colossal downswing phase (1981-1990) ensued, triggered by adverse exogenous shocks and marked by a massive, multi-country debt crisis, which pushed LA growth to dip dramatically below global growth. In the process, the region was forced into painful macroeconomic adjustments and compelled to seek a way out via a gradual process of trade opening and liberalization.

During the second cycle (the “Stabilization Cycle” of 1990-2003), the region focused on reigning in on the inflation ($P$) generated during the previous cycle, a by-product of excess fiscal spending under a closed economy environment in ISI’s waning days (Figure 1b). The region conquered inflation largely with the help of exchange rate-based stabilization programs (1990-1998), 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 macro-financial dynamics that were unleashed by a disinflation approach anchored on exchange rates planted the seeds that contributed to frequent and substantial financial (currency, banking, and debt) crises in the second half of the 1990s and early 2000s, crises that dragged the region’s growth down again below that of the world.

**Figure 1. Latin America’s Growth Cycles**

(a) Average GDP Growth  
(b) Real Exchange Rate and Inflation

*Notes: Growth is calculated as described in Section 3, based on the logs of average yearly growth rates over backward-looking moving windows (five-year between 1965 and 1969 and ten-year thereafter). Countries include Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Peru, Panama, and Uruguay. Source: WDI, World Bank.*

The third cycle (the “Commodities Cycle”, 2003-2018) 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, was followed by a commodities price bust starting around 2013 that led to a major growth slowdown. The region’s average real exchange rate relative to the US dollar ($e$) commoved with the three cycles, mirroring domestic demand fluctuations, appreciating strongly in the upswings and depreciating sharply in the downswings (Figure 1b).
Within the region, however, growth experiences over the three cycles were quite diverse, with the heterogeneity across countries changing over time. During the Trade Cycle (Figure 2a), some countries (Brazil, Colombia, Ecuador, and Mexico) grew rapidly during the upward phase of the cycle (the ISI period of 1960-1981) but then retreated during the downward phase (the debt crisis and trade liberalization period of 1982-1991). Instead, 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.

Figure 2a. Growth Performances During the Trade Cycle  
(Country GDP/World GDP Index; 1960=1)

Note: Countries that followed similar growth paths during 1960-1990 are grouped together. New Zealand is added as a lower growth frontier and a peer country to compare commodity producing countries. Source: WDI, World Bank.

During the Stabilization Cycle (1991-2003), Chile exited the mostly flat trend followed by other South American countries to become a star performer (Figure 2b). During the Commodities Cycle (2003-2018), it became Peru’s turn to deliver a stellar performance, even as Chile lost steam (Figure 2c). During this same cycle, other commodity exporting countries (Argentina, Brazil, Ecuador, and Venezuela) experienced buoyant growth during the commodities boom but significant growth collapses 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.

3 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).
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 LA countries were commodity exporters and, therefore, had similar export baskets. Afterwards, however, while South America consolidated or intensified its reliance on commodity exports (Figure 3a), Mexico shifted...
sharply toward manufacturing exports (Figure 3b), and Central America moved decidedly, albeit more gradually, toward the export of services (Figure 3c).

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

(a) Commodities

(b) Manufactures

(c) Services

*Note: The manufacture 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. Source: WDI, World Bank.*

**Figure 4. Terms of Trade**

*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. Source: WDI, World Bank.*

These changing trade structures altered countries’ exposures to terms of trade shocks (Figure 4). Before the mid-1980s, the entire region experienced a broadly similar downward trend in its terms of trade. After that, however, there was an abrupt bifurcation that spanned over both the Stabilization and Commodities 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 Commodities Cycle, when South America (but not the rest of the region) clearly benefitted 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:

1) *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 those of the world during the 1960-81 period (Brazil and Mexico were considered then the “miracle cases”). Given that 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) was the sole deciding factor. What then determined the success or failure of ISI?

2) *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 after the 1970s, becoming since then the worst performer in the region after Venezuela. Why was that the case?

3) *South America’s commodities puzzle.* While the heavy reliance on commodities has shown no clear signs of abatement since the 1960s for most South American countries, some of them (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-like commodities-reliant growth strategy likely to be?

4) *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. 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.

3. **Accounting for growth**

   a) *A simple growth accounting decomposition*

   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, a simple growth accounting decomposition equation can be derived 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. Second, rather than assuming constant trade (export and import) elasticities and using them to predict growth, the observed growth outcome is taken as given and decomposed into trade and macro factors.

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

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

Given that 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:

$$
\frac{g_y}{g_y^*} = \left(\frac{g_x}{g_x}\right) \times \left(\frac{g_m}{g_x}\right) \times \left(\frac{g_y}{g_m^*} / g_y^*\right) \quad (2)
$$

Based on the following definitions and notation:

$$
G = \log\left(\frac{g_y}{g_y^*}\right) \quad (3)
$$
$$
EP = \log\left(\frac{g_x}{g_x}\right) \quad (4)
$$
$$
EL = \log\left(\frac{g_m}{g_x}\right) \quad (5)
$$
$$
DR = \log\left(\frac{g_y}{g_m^*} / g_y^*\right) \quad (6)
$$

equation (5) can be rewritten as:

$$
G = EP + EL + DR \quad (7)
$$
where $EP$ stands for export pull and can be interpreted as the traction that export expansion exerts on a country’s growth; $EL$ stands for external leverage and can be interpreted as the impulse or drag on growth linked to a country’s accumulation or decumulation of net foreign assets or its use of terms-of-trade windfall gains; and $DR$ stands for domestic response and can be interpreted as

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4 Note that the deviations from current account equilibrium we are referring to 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. Note also that since we leave aside factor payments, our measured deviations are from the trade and services balance rather than from the current account balance. This distinction is not that relevant, however, given the limited volatility of net factor income and given that 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).
the country’s capacity to lift GDP growth above import growth (or the efficiency in the use of imports to grow).

Notice from (2), (3), and (4) that (the log of) the import growth relative to world trade, the “import response” $IR$, can be derived as the sum of the export pull and the external leverage, $IR = \log \left( \frac{g_n}{g_m} \right) = EP + EL$. This provides an alternative expression for the growth decomposition, which helps distinguish the declines in $DR$ driven by surges of imports (that reflect demand expansions) from those driven by falls in output (that reflect supply contractions):

$$ G = DR + IR $$

Valuations gains and losses deriving from relative price changes also need to be considered. Such valuation effects can be of two types: (i) the traditional terms of trade fluctuations—that is, the changes in a country’s export prices relative to its import prices—defined here as $TOT$; and (ii) fluctuations in the country’s import prices relative to the world’s import prices, defined here as $RIP$ (relative import prices). 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:

$$ G = NEP + NEL + NDR $$

It is then easy to show that real and nominal values are linked as follows:

$$ EP = NEP - TOT - RIP $$

$$ DR = NDR + RIP $$

$$ EL = NEL + TOT $$

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

$$ TOT = \log \left( \frac{g_n}{g_m} \cdot \frac{g_M}{g_n} \right) $$

$$ RIP = \log \left( \frac{g_M}{g_m} \cdot \frac{g_M}{g_m} \right) $$

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. Moreover, because it is expressed relative to 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, as will become clearer through the illustrations provided in Section 4, 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, features that promote standardization and comparability across time and between countries. In this way and as discussed in the next subsection, this growth decomposition method can enable inferences that help identify how growth responds to shocks or innovations in supply, demand, or trade.

b) Growth shocks

Equations (2), (7), and (9) imply a useful point of reference, a sort of “steady state” condition, which obtains where all the country variables grow at the same rate as the same variables for the world. In that case, the terms in equations (7) and (9) all equal zero and the country’s growth rate equals that of the world. Instead, a country’s growth deviates from the world’s if the growth rate of its exports or imports differ from those of the world. Such deviations can respond to supply, demand, or trade shocks and 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 rates of growth will automatically have an impact on two of the components of the identity. Moreover, a shock, depending on its nature (supply, demand, trade policy, etc.), will affect the three rates of growth differently. Thus, different types of shocks will leave different imprints on the growth spectrum \( (G, EP, DR, EL, IR) \), 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

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5 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 et al. (2010), by introducing a residual to close a model, they turn the model into an identity, thereby making it “theory free” (i.e., consistent with different theories). Yet both methods have been used extensively as analytical tools to help shed light on the complexity of the processes and assess alternative interpretations regarding the underlying causes.

6 The use of ten-year moving averages to calculate the accounting identity provides the best tradeoff between eliminating background noise, on the one hand, and capturing the relevant shocks and trends, on the other. However, reflecting data limitations (the World Bank’s WDI database starts in 1960), the initial values of the growth decomposition (from 1965 to 1969) are derived based on five-year moving averages. Given that 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.

7 As solid as such inferences can be, they of course do not formally solve the endogeneity problem or allow full identification in a micro-econometric sense.
track down their dynamic impact. Table 1 provides a synthetic overview on how to use the accounting identity as an interpretative tool.

**Table 1. Accounting for Growth Shocks or Innovations**

*(a) Volume Effects*

<table>
<thead>
<tr>
<th></th>
<th>Supply</th>
<th>Demand</th>
<th>Trade Liberalization</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Uniform</td>
<td>Purely Domestic</td>
<td>External</td>
</tr>
<tr>
<td><strong>EP</strong></td>
<td>$u$</td>
<td>$u$</td>
<td>$v$</td>
</tr>
<tr>
<td><strong>EL</strong></td>
<td>$u$</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DR</strong></td>
<td>$u$</td>
<td>$-v$</td>
<td>$-u$</td>
</tr>
<tr>
<td><strong>G</strong></td>
<td>$u$</td>
<td>$u$</td>
<td>$u - v$</td>
</tr>
<tr>
<td><strong>IR</strong></td>
<td>$u$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*(b) Valuation Effects*

<table>
<thead>
<tr>
<th></th>
<th>TOT (Unspent)</th>
<th>RIP (Spent)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nominal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NEP</strong></td>
<td>$u$</td>
<td>$u$</td>
</tr>
<tr>
<td><strong>NEL</strong></td>
<td>$-u$</td>
<td></td>
</tr>
<tr>
<td><strong>NDR</strong></td>
<td>$-v$</td>
<td>$-u$</td>
</tr>
<tr>
<td><strong>Real</strong></td>
<td>$G$</td>
<td>$u - v$</td>
</tr>
<tr>
<td><strong>EP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>EL</strong></td>
<td>$u$</td>
<td></td>
</tr>
<tr>
<td><strong>DR</strong></td>
<td>$-v$</td>
<td></td>
</tr>
<tr>
<td><strong>Valuation</strong></td>
<td>TOT $u$</td>
<td>RIP $u$</td>
</tr>
</tbody>
</table>

All shocks are assumed to be of size $u$, with possible offsetting responses of size $v$. To cleanly isolate (analytically speaking) the effects of a particular shock or innovation, we consider only the shock’s first-round impacts ($u$ and $v$) on the terms of equations (7) and (9)—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.

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

9 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).
Consider first volume shocks, i.e., shocks that affect the rates of change measured in constant dollars (Table 1a). 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 as well as goods produced and consumed domestically, tradable or nontradable. As a result, as depicted in the first column of Table 1a, \( G \) and \( EP \) would both rise by \( u \). At the same time, 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 macro or trade deviation from the “balance path” are by construction excluded from consideration or assumed to be stochastic shocks with mean equal to zero. But, as we will see below, that does not fit well the growth dynamics of Latin America, where trade and macro factors have been crucial in shaping its growth experience.

Instead, 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 \( DR \) with a constant \( EP \) and, in the absence of a domestic demand shock, a constant \( EL \) (as shown in the second column in Table 1a). As we will see below, such 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 (a rise in world demand for the country’s exports), as depicted in the third column of Table 1a. Given that, by assumption, domestic demand does not change, the positive external demand shock should not alter the current account (it would boost the rate of growth 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 uniform, across-the-board supply (productivity or factor accumulation) shock.\(^{10}\)

The impact of a domestic demand shock (for instance, an autonomous increase in real government spending) on growth depends on whether the economy is near full employment or not. Under a pure Keynesian environment (i.e., a horizontal supply curve), it would lead to a rise in \( G \) accompanied (given the country’s marginal propensity to import) by a similar increase in the growth rate of imports. Thus, \( EL \) would rise while \( DR \) would remain unchanged. Instead, in a pure classical setting (i.e., 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 (as depicted in the fourth column of Table 1a), 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”, potentially inflationary component.

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\(^{10}\) This identification problem is amply discussed in the Thirlwall-related growth literature. See for example McCombie and Thirlwall (2006).
Note that changes in $DR$ (i.e., in the ratio of output growth to import growth) could be dominated by 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 towards full employment. Instead, 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 demand that ends up having a negative impact on supply due to a surge of inflation, a real exchange rate appreciation, and a rising indebtedness possibly climaxing as a financial crisis. As will be illustrated below, the data confirms the importance for Latin American growth dynamics of such mixed shocks (bouts of expansionary domestic demand that ended up having negative consequences for supply), which are particularly relevant to shedding light on South America’s commodities puzzle.

Consider now the case of a trade liberalization shock (depicted in the fifth column of Table 1a). It 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 $EP$ ($v > u$). Instead, if it ends up destroying the local capacity to produce importables, $DR$ will decline by more than the rise in $EP$, at least initially, and $G$ would decline ($v < u$). The relevance of these sort of dynamics will be illustrated well in our empirical analysis of Mexico’s export-oriented industrialization puzzle in Section 4.

Consider next valuation shocks (Table 1b). Start with a pure terms of trade ($TOT$) gain that raises a country’s export prices without affecting its import prices 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. Instead, if the $TOT$ gains are fully spent, the impact will be the same as that of a domestic demand shock. The analysis of South America’s commodity puzzle (particularly the case of Argentina) in Section 4 will illustrate the macroeconomic impacts of terms of trade shocks given procyclical policy responses.

Finally, consider 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 (i.e., assuming that the price of local exports also rises relative to the price of world exports). That would increase

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11 This identification problem can also be addressed using equation (8). A decline in $DR$ associated with a decline in $G$ but no change in $IR$ must reflect a supply contraction. Instead, 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.

12 Note the fundamental difference between the nominal and real accounting of savings: an unspent terms of trade 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 et al, 2016).
the country’s *RIP* without changing its *TOT*. In this case, in line with equations (10)-(12), *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 have no impact on output growth or any of its real components.

In what follows, we use the growth decomposition presented in Section 3a and the identification strategies discussed in Section 3b to explore the growth puzzles mentioned in Section 2. We use both year-to-year decompositions (based on backward-looking moving averages) and full-period decompositions (yearly averages for the entire period or sub-period). Throughout Section 4 we use real (rather than nominal) growth decompositions (including, when needed, the associated terms of trade effects) as the workhorse equation, to separate better volume from price (especially *TOT*) effects. Yet, in the case of Mexico, we also show the nominal version of the growth decomposition to gain additional insights.

4. **Decomposing Latin American growth puzzles**

   **a) Latin America’s import substitution industrialization puzzle**

   Many Latin American countries embarked enthusiastically into a growth strategy based on import substitution industrialization during the 1960-1981 period. Yet only few registered growth rates above those of the world; the majority lost ground. What explains these ample differences in growth experiences across LA? Given that 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 ISI 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.\(^{13}\) 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-sized Ecuador also delivered strong growth under ISI, especially in the 1970s, while larger-sized Argentina and Venezuela did not. Therefore, there must have been other determinants of ISI success, as or even more important than sheer size.

   To shed light into these questions, LA countries that embraced ISI are divided into two groups, those with “positive growth” relative to the world during the ISI period (Brazil, Colombia, Mexico, and Ecuador); and those with “negative growth” (Argentina, Bolivia, Chile, Peru, and Uruguay).\(^{14}\) Real growth decompositions are then applied to the sum of the two groups and to their difference (the fast minus the slow growers). In the sum chart (Figure 5a), trend *G* follows a mix of *DR* and *EP*; in the difference chart (Figure 5b), *G* follows *EP* but not *DR*. Let us elaborate.

   That the entire group experienced upward trending *DRs* (see Figure 5a) matches the conventional view of ISI as a positive internal supply shock that translated into an inward-looking

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\(^{13}\) Such cross-sector productivity growth is defined as “structural change” by McMillan et al. (2017).

\(^{14}\) We set aside Venezuela, due to missing trade data in the 1960s and early 1970s, and the Central American countries, which, as we will later see, followed rather different trade dynamics.
domestically-led growth (where output growth outpaced import growth). Yet, the fact that the growth decomposition for the differences between the two subgroups shows $G$ to have followed $EP$ rather than $DR$ (see Figure 5b) implies that the countries that delivered higher growth rates under ISI did so, not so much 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, that $DR$ in Figure 5a was mostly in positive territory implies that all countries benefitted from a domestic supply shock as high protection boosted their supply of importables. Yet, the fact that in Figure 5b, it is $EP$ (rather than $DR$) that explains the growth differential between the fast and slow growing countries shows that the success or failure of ISI ultimately hinged on countries’ export capacity.

**Figure 5. Latin America: Growth Decomposition for the ISI Period**

**Panel (a) Sum**

**Panel (b) Difference**

*Note: LA 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 sum of the two groups in Panel (a) and to their difference (i.e., the fast 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 (five-year between 1965 and 1969 and ten-year thereafter). Source: WDI, World Bank.*

In other words, and contrary to what is often believed, 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. Given that manufactures were sold in the domestic market (or in the similarly protected sub-regional common markets, such as the Andean Pact), the exports that really counted to prop up ISI were the non-manufacturing ones, that is, the commodity exports. This leads to an

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15 This conventional view is illustrated by Pages et al. (2010), who provide 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 petered away with the exhaustion of the rural-to-urban migration process.

16 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.)
additional and crucial conclusion, namely, that ISI failed in one of its main objectives: instead of reducing commodity dependence, it intensified it.

As we will see in the next section, in addition to running into a dead-end, ISI planted the seeds (both trade and macro-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 but also prevented the strengthening of the business environment (including institutions) needed to support the improvement in competitiveness under a liberalized trade regime. On the macro 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).

b) 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 40 years. This constitutes a major puzzle, especially considering Mexico’s rather impressive consolidation of macroeconomic stability and successful shift towards an export structure dominated by manufactures.17

Applying the growth decomposition method to unravel this puzzle unearths three main story lines that help explain Mexico’s disappointing post-ISI growth record and that have not received sufficient attention in the literature: (i) a decline in G driven by a collapse in DR following Mexico’s trade liberalization; (ii) the timing of the China surge (a negative external demand shock), which hit Mexican exports hard just when they were beginning to thrive; and (iii) an excessive reliance on the inherently slow growing, mature US market (another external demand constraint). The rest of this section elaborates.18

Figure 6—which decomposes Mexico’s growth based on equations (7) and (9)—gives a bird’s eye perspective. Five sub-periods may be identified: ISI, oil boom, trade liberalization and stabilization, NAFTA, and China Surge. The nominal decomposition (Figure 6a) and the real decomposition (Figure 6b) are quite similar, except that NAFTA had a much larger nominal than real impact on the export pull, reflecting the shift towards higher priced manufacturing exports. Inversely, reflecting offsetting 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

17 Mexico is one of the few Latin American countries that has earned investment-grade status and, according to the MIT’s Observatory of Economic Complexity (https://atlas.cid.harvard.edu/rankings), in 2018 ranked 1 in the region and 19th in the world (ahead of Canada and Spain) in “economic complexity”. That alone should have led to higher growth, according to the finding of Hausmann et al. (2014), yet it did not.

18 Ize (2019a and 2019b) provides additional discussion and insights on Mexico’s growth.
NAFTA, fell with the start of the China surge, and recovered (albeit modestly) after the global financial crisis of 2008-2009. 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.

**Figure 6. Growth Decompositions for Mexico**

(a) Nominal

(b) Real

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

Mexico’s $DR$ collapse was indeed atypically strong and prolonged. Figure 7 presents growth decompositions (all expressed in real terms) that compare Mexico’s case with that of 30 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 $t = 0$ (the starting date for Mexico is 1986; see the country breakdown and starting dates for the rest of the sample in Appendix Table 1). Figure 7a shows the averaged results of this exercise for the 30 countries. Typically, trade surge episodes have led to an initial fall in $G$, driven by a decline in $DR$ (reflecting an import boom that displaced the local production of importables) that more than offset the increase in $EP$. 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 $EP$, $DR$, and $EL$. One reason is that instead of opening international trade within a stable macroeconomic environment (a flat $EL$) as in most other world cases, Mexico liberalized its trade under extreme macroeconomic turbulence (Figure 7e). 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 $EL$) of the 1990s. $EP$ fell (instead of rising) in the initial (eight) years after the launch of trade liberalization (Figure 7c). While the fall in $EP$ resulted in large part from the decline of Mexico’s oil exports (an event that bears no relation with trade liberalization policies), it also reflected the strong real exchange rate appreciation that accompanied inflation.

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19 The trade surge events in our sample were selected based on observed trade patterns (sustained divergences between $EP$ and $DR$), rather than specific trade liberalization policies. In most (if not all) cases, however, trade surge periods broadly coincided with the implementation of trade liberalization policies.
stabilization (Figures 7g and 7h). Mexico’s EP rose after the start of NAFTA but fell again after China’s entry into the WTO. And Mexico’s DR, which had initially fallen as much as the average of the world episodes, subsequently collapsed with the domestic demand boom that accompanied the exchange rate-based disinflation process (Figure 7d). While DR recovered after NAFTA, it has remained substantially below that of the comparator trade liberalization episodes.

**Figure 7. Growth Decompositions for Trade Liberalization Episodes**

(a) The World  
(b) Mexico  
(c) Export Pull (EP)  
(d) Domestic Response (DR)  
(e) External Leverage (EL)  
(f) Import Response (IR)  
(g) Real Exchange Rate  
(h) Inflation

**Note:** Each growth component is calculated as the log of the yearly average over a backward-looking moving window (five-year between 1965 and 1969 and ten-year thereafter). Some of the data for the initial years after the start of trade liberalization is missing for some of the Eastern European countries. The real exchange rate is the bilateral rate with respect to the SUS; it is obtained as the log of the average yearly rate of change over a ten-year backward-looking window. Similarly, the rate of inflation is obtained as log of the average yearly rate change in inflation (as measured by the GDP deflator) over a ten-year backward-looking window. Source: WDI, World Bank.

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 in the wake of the fall of the iron curtain (Figure 7d). 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 Figure 7f) that crippled growth for a prolonged time via 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 mentioned real exchange rate appreciation and by the financial turbulence experienced in the late-1980s and 1990s, including the 1995 great Tequila crisis.

**Figure 8. Mexico: The Economic Relevance of Manufacturing**

Note: To control for different trends, the two variables in the chart are calculated subtracting the Latin American average from Mexico’s values. Source: WDI, World Bank.

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 8 above; 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) a close to 50% increase in Mexico’s manufacturing share of exports translated only into a 5% increase in the share of GDP, even after correcting for the region-wide 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. 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.

Consider now the collapse of Mexico’s EP during the Commodities Cycle. It is mainly attributable to the stiff competition from Chinese manufactures in third markets, chiefly the US. In effect, Mexico’s share in US imports, which had been rising in the wake of NAFTA, contracted as China surged (Figure 9a). This suggests that it was the timing of Mexico joining NAFTA—and not NAFTA per se—which was behind the poor economic performance during this subperiod. Had
Mexico joined NAFTA, say, 10 years earlier, its manufacturing export expansion would have had more time to consolidate and thus provide a firmer foundation for Mexico’s economic growth. That would have, in turn, enabled Mexico to fare better under the China surge.

Figure 9. Drivers of Mexico’s Collapsing Export Pull in the Commodities Cycle

(a) Shares of US Import Market

(b) Mexico’s Growth Relative to the US

Source: WDI, World Bank, and US Census Bureau.

An aggravating factor for Mexico has been its unduly high dependence on the US, a mature economy that has been growing less than the world, and within the US, on the automotive sector, itself a mature sector with a relatively low growth elasticity. This can be checked in Figure 9b, which shows Mexico’s growth decomposition relative to the US instead of the world (i.e., the difference between the growth decompositions of Mexico and the US). Mexico’s G remained close to zero from 1995, when Mexico joined NAFTA, to 2009, the aftermath of the global financial crisis that affected US and Mexican growth asymmetrically. For the most of the last 25 years, therefore, Mexico’s G has followed all too closely the US. As the latter has tended to grow more slowly than the world, it has systematically held Mexico’s growth below what would have otherwise been expected from an emerging economy. As Mexico’s population grows faster than that of the US, tightly linking Mexico’s growth to the US market has resulted in Mexico’s per capita income losing ground relative to that of the US.

While the US absorption of Mexican exports has grown over the last 10 years, lifting EP, this has not been sufficient to drive Mexican growth into positive territory due to a simultaneous fall in DR (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 contain DR, hence G. Other non-trade related factors, including the low productivity growth of Mexico’s large informal sector, have also no doubt also contributed to depress Mexico’s DR.21

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20 While Mexico’s recently rising export suggests a welcome ability to adapt and reconstruct export niches while taking advantage of China 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...
c) South America’s commodities puzzle

As already noted, the heavy reliance on commodities has shown no signs of abatement since the 1960s for most South American countries. As a matter of fact, South America’s GDP growth tracked the growth of exports volume during the Trade and Stabilization Cycles, but became more tightly linked to the growth of export prices (i.e., to the region’s terms of trade) during the Commodities Cycle (Figure 10). Also, despite continued and intensifying commodity dependence, not all South American countries have fallen prey to symptoms of 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 the world followed by Venezuela and Argentina (Figure 2a). What explains these heterogeneous results? And how sustainable is Chile-like commodity dependent growth?

Figure 10. South America’s Growth, Export Pull, and Terms of Trade

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, that the key drivers behind the heterogeneity in growth performances across commodity producing countries are: i) the rate of expansion in export volumes (i.e., external supply shocks); and ii) the ability to avoid excessive procyclicality in spending during commodity booms (i.e., 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 Commodities Cycles.

Note: G and EP are calculated as the log of the yearly average over a backward-looking moving window. TOT is the log of its average yearly rate of change over a ten-year backward-looking window. Source: WDI, World Bank.

has been stunted by major misallocation of physical and human capital resulting from flawed tax, labor, and social insurance policies, together with malfunctioning contract enforcement- and competition-related institutions. Mexico’s DR would have surely fallen less and less persistently had microeconomic distortions of this type been less severe.
Consider first the case of Chile relative to other South American commodity exporters. As depicted in Figure 11a, 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 terms of trade gains resulting from soaring copper prices. Instead, other South American commodity exporters (Argentina, Bolivia, Peru, Uruguay, and Venezuela) experienced a pronounced growth dip during this period, associated with collapses in $EP$ and $DR$ (Figure 11b). Yet, these exporters also experienced gains in their terms of trade 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 terms of trade 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.

**Figure 11. Growth Decomposition: Chile’s Growth Surge, 1975-2002**

(a) Chile  
(b) Other Commodity Exporters  
(c) Difference

*Note: Each growth component is calculated as the log of the yearly average over a ten-year backward-looking moving window. Source: WDI, World Bank.*

Another question that needs addressing is why Chile’s growth in lost ground during the Commodities Cycle (the 2000s) to Bolivia and Peru, the two neighboring countries with similar export concentration in mineral commodities. Figure 12a 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 terms of trade gains ($TOT$). In other words, Chile’s growth in the 2000s slowed down 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 longer time) and a comparable rise in export prices. As the latter more than offset the former, growth in Bolivia and Peru accelerated (Figure 12b). The difference of the two growth decompositions in Figure 21c 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 Commodities Cycles point, therefore, at 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 volumes. Otherwise, growth is bound to falter, unless of course a luck of the draw comes to the rescue in the form of terms of trade windfall gains.22

Figure 12. Growth Decomposition: Chile’s Growth Decline, 2002-2018

(a) Chile    (b) Bolivia and Peru   (c) Difference

*Note:* Each growth component is calculated as the log of the yearly average over a ten-year backward-looking moving window. *Source:* WDI, World Bank.

Consider now the case of Argentina. Why has this country, unlike Chile, been chronically unable to break free from the secular downward GDP trend shown in Figure 2? To explore this question, it is useful to compare Argentina to New Zealand, given that both countries specialize in agricultural commodities and hence have exhibited similar growth spectrums over the entire 1960-2018 period (Figure 13). 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.

Figure 13. Growth Decomposition: Argentina vs. New Zealand, 1960-2018

*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. *Source:* WDI, World Bank.

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22 To be sure, Chile has made important strides towards diversifying within commodities and on the shoulders of commodities. Mandel (2011), for instance, provides evidence of significant upgrading towards higher-quality, higher-value-added varieties within 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. Similar but more recent evidence of export diversification in Chile, anchored on natural resources (towards forestry products, expanding varieties of fruits, etc.), is provided by Meller (2019). However, these visible inroads towards diversification have not kept export volumes up.
But demand factors were of course also involved. As shown in Figure 13, 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 expansion that ended up weakening 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 to 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 Commodities Cycles (1990-2018), where Argentina ended up both times with major growth collapses. Figures 14a and 14b show 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 (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 (Figure 14b). New Zealand also experienced terms of trade gains during these cycles (albeit of a smaller amplitude), but its EL did not significantly exceed the rise in TOT, a sign of neutral or countercyclical policies (Figure 14c).

Figure 14. Growth Decompositions: Argentina vs. New Zealand, 1990-2018

(a) Argentina: IR, DR  (b) Argentina: EL, DR, TOT  (c) New Zealand: EL, DR, TOT

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

Thus, notwithstanding their clear contrasts, the experiences of Argentina and Chile transmit the same basic lesson. Namely, that 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, so as to avoid the type of growth-imparing macroeconomic turbulence that is typically triggered by volatile commodity prices.

Chile’s and New Zealand’s more prudent macro management of commodity price fluctuations compared to Argentina also brings to the forefront the relevance of the quality of
underlying institutions and nature of socio-political dynamics, which are of course deeper determinants of the variables in the accounting decomposition. Indeed, 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, 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 natural resource curse symptoms are more likely to obtain where institutions are weaker and socio-political tensions more acute.23

d) Central America’s services puzzle

Central American countries have become producers and exporters of services (Figure 3c). Perhaps as a result, the growth decomposition spectra of these countries for 1990-2018 are similar in that the average G for the period has been significantly associated, in magnitude and direction, to DR (Figure 15a). This suggests a pattern where, in contrast to the rest of LA, the level of G appears uncorrelated to 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 (their economies expanding, on average, around 2.5 percentage points per year faster than the world) while Guatemala, Honduras and El Salvador have been the low performers (their economies either meagerly growing ahead of the world or, in the case of El Salvador, actually shrinking relative to the world).24 What explains this difference?

Figure 15. Central America: Growth Decomposition

(a) Growth Spectra, 1990-2018

(b) High Performers minus Low Performers

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. Source: WDI, World Bank.

23 On the links between institutional quality and socio-political 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 15a. Although it also has a relatively high share of services exports in total exports (around 35%, versus 40% for the average of the other Central American countries), El Salvador has a comparatively much larger share of manufactures in total exports (nearly 60%, versus around 40% on average for the rest). This makes El Salvador’s growth spectrum quite similar to that of Mexico.
Figure 15b, 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 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 16 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 (Figures 16a and 16b). This of course 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 remittances inflows (which help support consumption, hence alleviate poverty) seems to have systematically undercut growth in the low performers.\(^{25}\) Thus, in terms of the shock analysis of Section 3b, FDI inflows, unlike remittances, enabled positive supply shocks that boosted growth.

**Figure 16. Central American Countries**

*(Percent of GDP)*

<table>
<thead>
<tr>
<th></th>
<th>(a) Remittances</th>
<th>(b) FDI</th>
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</thead>
<tbody>
<tr>
<td><strong>High Performers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low Performers</strong></td>
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</table>

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

While a full explanation of the contrast between FDI-reliance versus remittances-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 17). Services

\(^{25}\) 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.
seeking customers and FDI inflows are both unlikely to flock in from abroad to a country where the rule of law suffers from major weaknesses.\textsuperscript{26}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Fig17.png}
\caption{Latin America: Growth and Crime}
\end{figure}

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 of the World Justice Project database for 2018 (a higher indicator corresponds to a better control). Sources: WDI, World Bank; and World Justice Project.

5. Concluding thoughts

This paper has explored Latin American-specific 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 macro policy and international trade. In doing so, it brought to the surface potentially fruitful areas of intersection 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 illustrate the results of productivity growth; or does trade itself matter for productivity growth? The question may itself be broken down into two: i) are tradable goods special as regard their growth implications; and (ii) is the size of the trade deficit relevant for growth? The first issue is supply side oriented, the second demand oriented.\textsuperscript{27}

\textsuperscript{26} To be sure, causality between institutional quality and growth runs in both directions. A weak rule of law discourages investment and limit countries’ export potential. But the lack of growth can weaken institutions, partly by dampening the demand for and supply of quality governance.

\textsuperscript{27} The reasons usually invoked to justify 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 resiliency (Rodrik, 2008; Hausmann et al. 2014; and Hausmann, Hwang and Rodrik, 2005). The importance of the trade account balance for growth is central to the Thirlwall model and the vast associated macro-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, hence attract capital inflows, in apparent contradiction with neoclassical growth theory that predicts the opposite). But work on the micro-foundations of this linkage is only starting to emerge, as illustrated in a very recent paper by Brunnermeier, Gourinchas and Itskhoki (2018), which explains 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-WWII growth saga. A faster expansion of tradables (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 on 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 provided 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, and 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 established a link between macroeconomic management and growth, not just stability. Due to terms of trade volatility, commodity producers’ growth tends to be shaped by large domestic demand fluctuations. Hence, prudent spending during a terms-of-trade boom can substantially mitigate the growth collapse in the bust, thereby raising longer-term growth. As a result, macro-financial 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 into 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 $DR$s in economies oriented towards manufacturing exports, and hinder the inflow of growth-enhancing FDI in service-oriented economies.
References


## Appendix

### Table 1. Trade Liberalization Episodes: Country Breakdown and Starting Dates

<table>
<thead>
<tr>
<th>Latin America</th>
<th>Eastern Europe</th>
<th>Southern Europe</th>
<th>Northern Europe</th>
<th>Other High Income</th>
<th>East Asia</th>
<th>Other</th>
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