

BTMU FOCUS LATIN AMERICA

[SPECIAL REPORT]

Gauging Latin America's Dependence on Commodities

MUFG UNION BANK, N.A.
ECONOMIC RESEARCH (NEW YORK)

Hongrui Zhang
Latin America Economist
(212) 782-5708
hozhang@us.mufg.jp

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The Bank of Tokyo-Mitsubishi UFJ, Ltd.
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<EXECUTIVE SUMMARY>

- Latin America as a region is, in essence, commodity-dependent: exports are severely concentrated in raw materials; governments tend to rely on revenues from natural resources to finance their budgets; and investments are, to some degree, swayed by commodity cycles. But on a deeper level, the degree of dependence varies greatly across countries.
- The end of the commodity-price boom has been a major force behind the sharp slowdown in most Latin American economies. This evidently does not bode well for Latin America's growth prospects, and makes it even more pressing to implement the structural reforms needed to put the region back on a sustainable and higher economic growth path.
- The downturn in commodity prices does not explain the stark divergence in economic performance between Argentina and Brazil, on one side, and Chile, Colombia and Peru, on the other. This divergence suggests that a high degree of dependence does not necessarily make an economy more vulnerable to swings in the commodity market. It very much depends on how a country manages the extraordinary windfalls throughout the boom and bust cycle.

Degree of Commodity Dependence of Major Latin American Economies*				
COUNTRY	TRADE		PUBLIC FINANCE	INVESTMENT
	Gross Exports	Net Exports	Fiscal Revenues	FDI
Argentina	High	Moderate	Low	Low
Brazil	High	Low	Low	Moderate
Chile	Very High	High	Moderate	High
Colombia	Very High	Moderate	Moderate	High
Mexico	Very Low	Very Low	High	Very Low
Peru	Very High	Moderate	Moderate	High

*Own classification
Source: BTMU

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1. Introduction

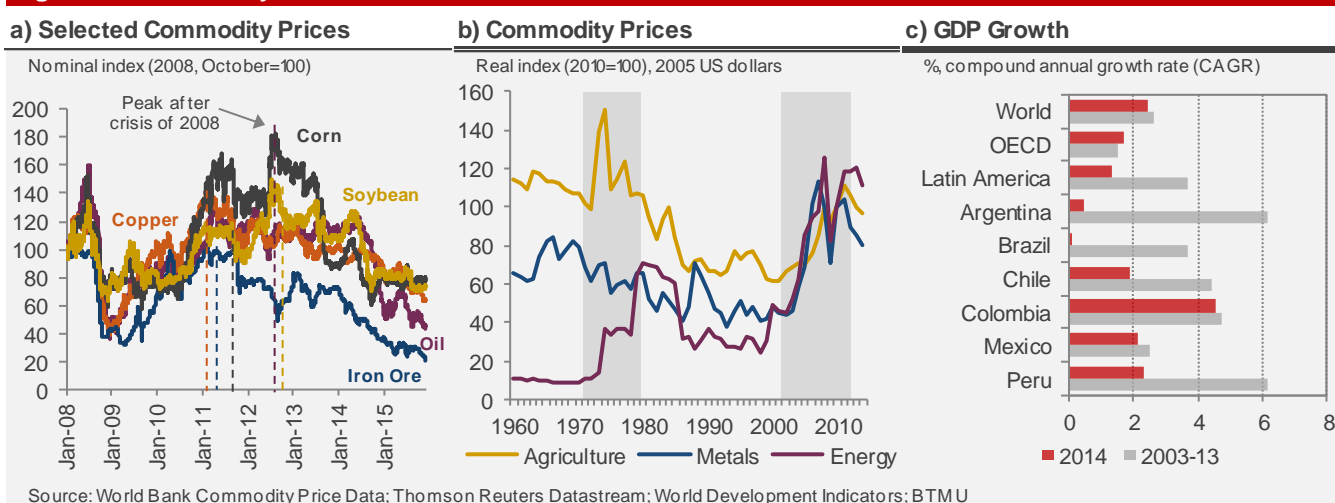
Latin America has seen better days: Major economies are struggling to cope with lower agricultural, metal and energy prices.

It was good while it lasted. After reaping the benefits from a decade-long, Chinese-led commodity boom that roughly peaked in 2012 (Figure 1-a, b)¹, and enjoying years of stunning GDP growth; Latin American economies, commonly labeled as commodity-dependent, have been struggling to cope with the fall in commodity prices and its immediate impact on terms of trade and economic growth. Chile and Peru, both members of the Pacific Alliance trade bloc, for instance, saw their growth rates slashed in 2014 (Figure 1-c). Members of Mercosur, the other free-trade bloc in the region, fared even worse: Argentina and Brazil barely grew in 2014; while Venezuela slipped into a severe recession. This gloomy situation is expected to linger for a while as the Brazilian economy, the largest in the region, is currently mired in a protracted and deep recession, while other major economies continue to grow at a sluggish rate.

Low commodity prices raise several questions: How reliant is Latin America on commodity? Does it explain the recent poor economic results?

Going forward, commodity prices will likely remain relatively low for a while², restrained by ample supply as a result of previous investments in new capacity, and a sapping global demand for raw materials, especially from China and emerging markets. This naturally raises several questions over the influence of commodities on Latin America. How commodity-dependent is the region? How can this reliance hurt the economy? Does the downturn in commodity prices explain the recent poor economic results in major Latin American economies? If yes, what are the implications down on the road? Those are some of the relevant questions that this report seeks to answer.

Figure 1: Commodity Prices and GDP Growth



¹ Erten and Ocampo (2013) found strong evidence that the boom was largely driven by demand, particularly from China.

² This is basically the consensus view of commodity experts and market analysts, though agricultural, metal and energy prices are still well above their historical averages in real terms.

2. Gauging Latin America's Dependence on Commodities

Commodity dependence is a relative concept, relying on the lens through which is measured.

Dependence is a relative concept, conditional on the lens through which is measured. Take the examples of Mexico and Colombia, both usually categorized as oil-dependent. In 2014, Mexico's net oil exports made up only 0.7% of GDP which, compared to Colombia's 7.5%, looks trivial, and hardly anyone would label the Mexican economy as oil-dependent. Yet the picture is quite different if dependence is measured by sources of fiscal revenue: oil-related income accounted for around 30% of Mexico's total fiscal income in 2014, which is nearly twice as much as Colombia's 18.1%.

Most indicators or indexes of dependence are primary based on trade data. But in order to have a deeper understanding of the nature of Latin America's dependence on natural resources, this report will widen that scope to include data on investments and public finance.

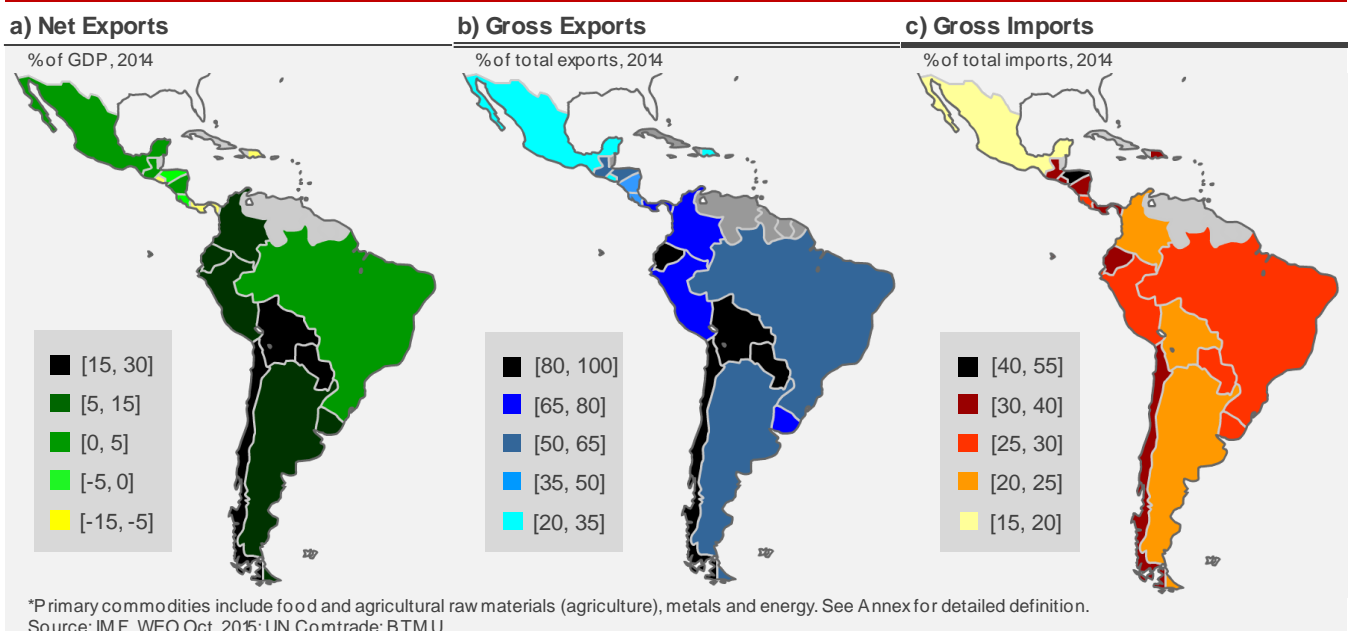
2.1. Trade

Gross exports of major Latin American economies, with the exception of Mexico, are heavily concentrated in primary commodities.

The degree of commodity dependence of Latin American economies can be directly gauged through their current trade structures (Figure 2). Some findings are worth underlining.

- South America's gross exports are heavily dominated by primary commodities³, making up about 70% of the total

Figure 2: Exports and Imports of Primary Commodities*



³ See Appendix I for detailed definition of primary commodity exports.

Brazil's net exports make up a small share of GDP, implying that at least through the trade channel, the fall in commodity prices may not have put a big dent in the economy.

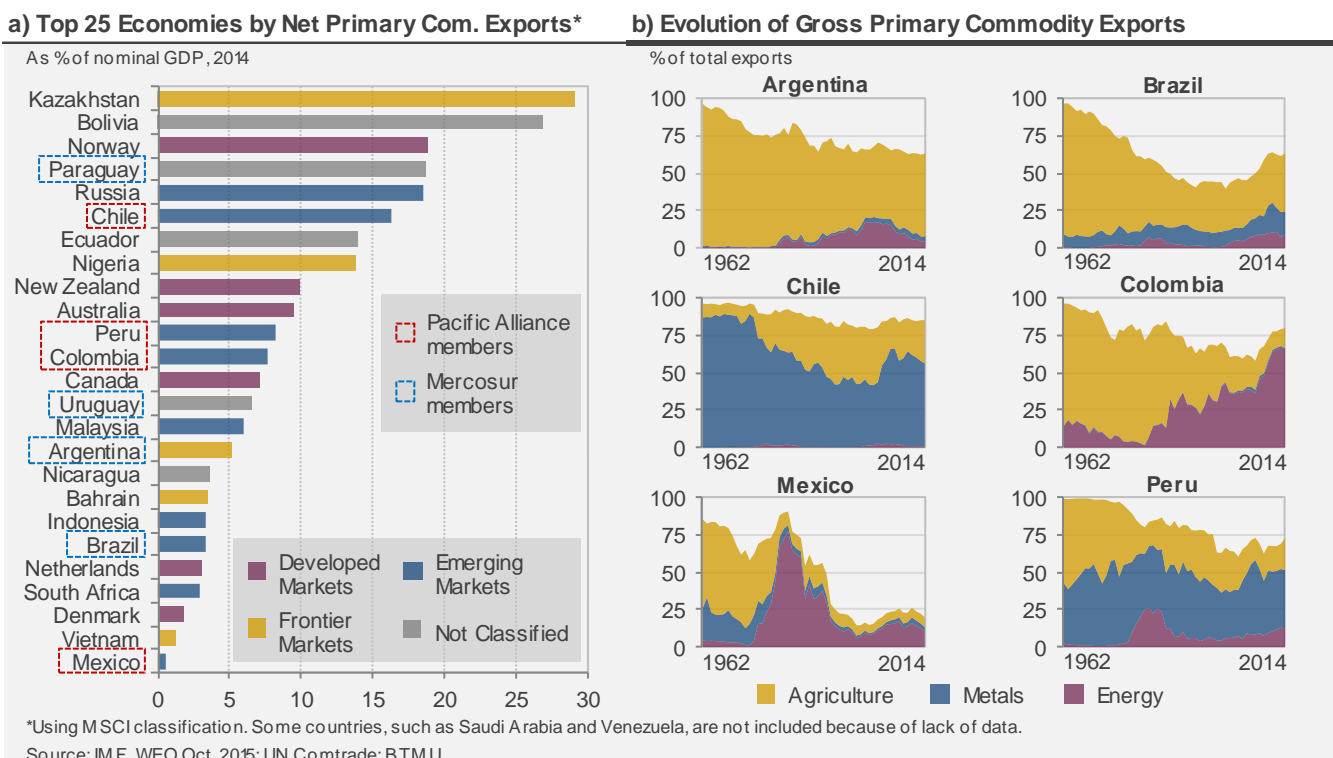
exports. Among LA6 countries (i.e., Argentina, Brazil, Chile, Colombia, Mexico and Peru), Mexico is the only one whose exports are not concentrated in primary commodities (about 20% in 2014).

- On average, primary commodities do not make up a large portion of the region's total imports. The percentages range from 18% to 32% among LA6 countries.
- Net exports as a share of GDP are perhaps a better indicator because it shows the net effect on the economy. In general, the numbers are as expected and consistent with the previous findings, with just one exception. Brazil's net exports of primary commodities only represented 3.3% in 2014, and have stayed around 3% over the past 5 years, reflecting its limited trade openness. But more importantly, it suggests that at least through the trade channel, the crash in commodity prices might not have hurt Brazil as much as Chile or Peru.

The dependence of Latin American economies on commodity exports is high even from a global perspective.

What about from a global perspective? Where does the region stand compared with other net primary commodity exporters? Surprisingly (or not), most Latin American economies stand in high positions (Figure 3-a). Indeed, 11 out of the top 25 economies are located in the region. Perhaps more interesting is the fact that 3 of

Figure 3: Historical and Global Perspective of Latin America's Reliance on Primary Commodity Exports



the 4 members of the Pacific Alliance rank above the two largest economies of Mercosur: Argentina and Brazil. And yet the formers have posted much better economic results lately than the latter, despite being more reliant on commodity exports. Another appealing surprise is the absence of a clear relationship between market development and degree of export commodity dependence. In fact, there are as many developed markets in the top 25 as there are emerging or frontier markets, suggesting that commodity dependence could be a curse as well as a blessing⁴.

From a historical perspective, major economies in Latin America did make headway in reducing its dependence on commodity exports, though only Mexico escaped from it.

Now, from a historical perspective, the findings are even more revealing (Figure 3-b). First off, LA6 countries have reduced their dependence on commodity exports over time, though Mexico is the only country whose exports are not concentrated in raw materials now. The second largest economy of Latin America managed to pull that off, partly due to NAFTA (signed in December 1992 and entered into force on January 1994), and partly because of its proximity to a major importer of manufacturing products such as the US.

Second, the recent commodity-price boom, coupled with the voracious appetite of China for raw materials, contributed to beef up the already strong dominance of commodities in the region's exports. This by no means hints that growth in non-primary commodity exports was lackluster. Quite the opposite actually: all LA6 countries except Mexico recorded double-digit annual growth rates from 2003 to 2011. But evidently primary exports climbed at a much faster pace.

The latest commodity-price boom, however, beefed up the dominance of natural resources, and brought forth major structural changes.

One last point worth noting is that the composition of commodity exports in most LA6 countries has remained relatively stable over the last three decades. Agricultural products such as soybean still dominate Argentine and Brazilian exports; while metals such as copper continue to make up a big share of Chilean and Peruvian exports. Colombia, though, is the notable exception. Agricultural exports used to represent the biggest part of the pie, but now they only account for around 13%. In contrast, oil exports ballooned from 25% in mid-1990s to about 65% in 2014.

Up to now, the message is clear: the trade sector of most Latin American economies has and continues to gravitate around natural resources, leaving it very susceptible to big turnaround in prices. Not

⁴ There is empirical evidence backing up both theses. On one hand, high natural resource endowments tend to lead to higher commodity exports, which in turn prompts the real exchange rate to appreciate, making the manufacturing sector less competitive (i.e., the well-known Dutch disease, see Sachs and Warner 1995). On the other hand, natural resource endowments have helped countries such as Australia, Canada and Norway to grow and diversify (World Bank 2005). Moreover, Mehlum, Moene and Torvik (2005) found that the curse can be turned into a blessing for countries with good institutions.

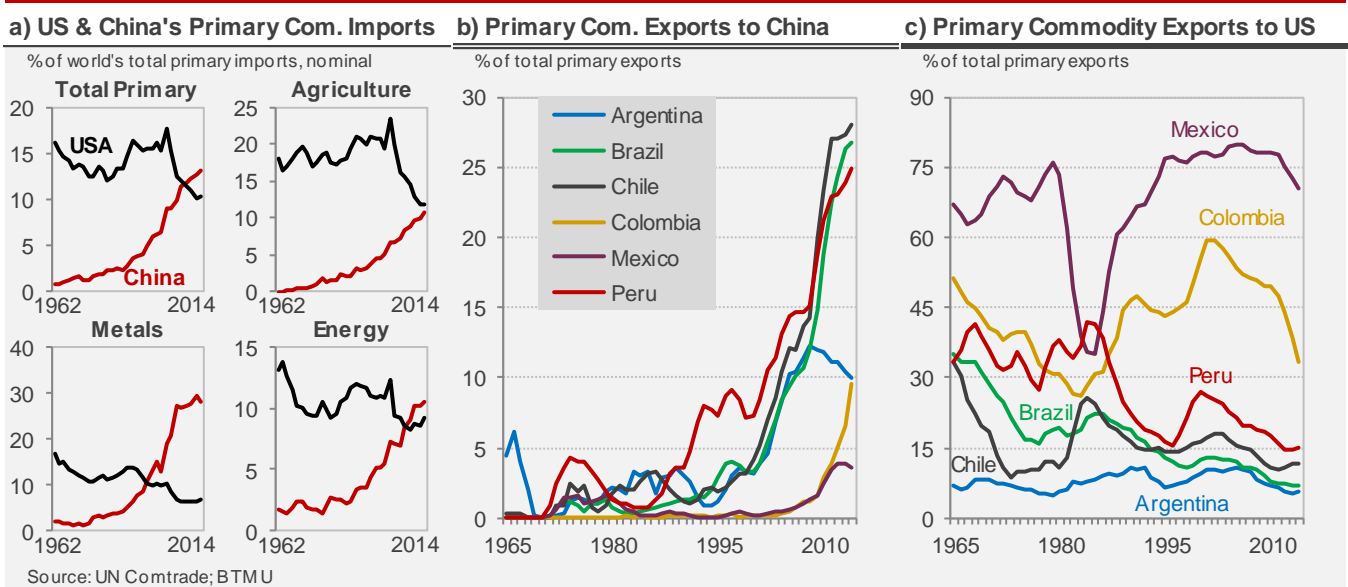
surprisingly, export earnings started to fall in 2013 in all LA6 countries except Mexico. Still, it would be a mistake to see the region's dependence on natural resources the same as it was three decades ago. In fact, there are major structural shifts.

China has become an extremely influential player in the commodity market.

In a short period of time, China has dethroned the US as the main export market for Brazil, Chile and Peru.

- China has overtaken the US as the world's biggest importer of primary commodities (Figure 4-a). Of course, the blame is not on the US, as its imports in fact surged more than threefold over the last two decades, but instead on the astonishing rise of China as a critical player in the commodity market. Indeed, the numbers leave no room for doubts⁵. China consumes almost half of world's refined copper, and is by far the world's largest importer of copper, with a share of 45% in 2014. It also consumes around 12% of world's oil, and is responsible for about 9% of all oil imports.
- The expanded influence of China has led to some major changes in the trade structure of most major Latin American economies in a relatively short period of time (Figure 4-b). For instance, China is now the main trading partner for Brazil, Chile and Peru; and the destination for almost 20% of Colombia's oil exports (only 5% in 2009). In contrast, the US market has been steadily losing ground for some time (Figure 4-c). Thus, is it China behind the recent fall in Latin America's export revenues? The answer is yes. Yet the reason is not because China is consuming or importing less agricultural, metal and energy commodities; but because the pace of

Figure 4: Primary Commodity Imports and Exports



⁵ See Appendix II for China's consumption, production and imports of commodities.

growth has slowed substantially in the last two years, dragging prices down⁶.

The dominance of commodities on exports has implications beyond the trade sector.

The high degree of commodity export dependence has no doubt implications beyond the trade sector. The recent sharp depreciation observed in most Latin American currencies, for instance, was at least in part prompted by the sudden drop in exports, which in turn fueled inflation and hurt capital and consumption spending through higher import costs.

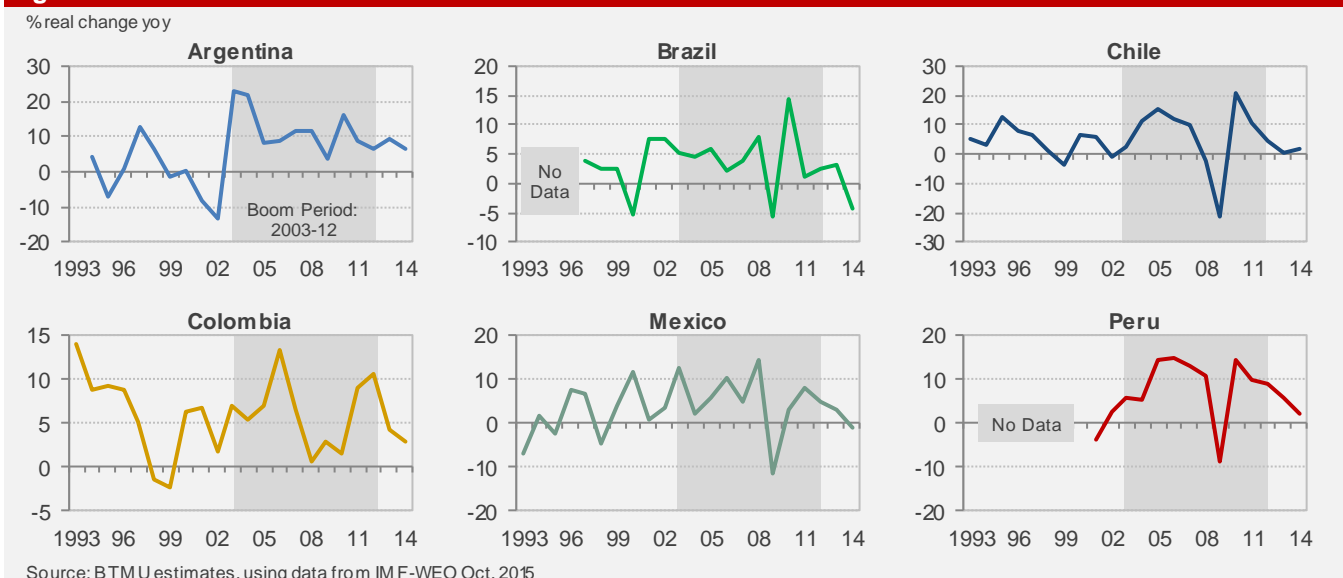
2.2. Fiscal Revenue

Fiscal income in most Latin American economies grew exponentially during the commodity-price boom period.

Public finances in the region appear to fluctuate depending on how commodity prices evolve⁷. As observed during the commodity-price boom period, revenues of most Latin American governments grew considerably and steadily (Figure 5), only to be interrupted by the 2009 global financial crisis that brought prices down. But because the global economy quickly picked up in 2010 and lifted prices in the process; fiscal income also ballooned, although for only a short period of time. Since then, fiscal revenue growth in all LA6 countries has declined noticeably and moved in tandem with commodity prices. All this suggests that governments also depend heavily on commodity-related revenues.

Of course, the ups and downs in fiscal revenue growth over the last

Figure 5: General Government Revenue



⁶ Jenkins (2011) estimated the impact of the rise in prices attributed to China on the top 15 commodities exported from Latin America in 2007. He found the gains attributed to higher prices range between \$41 billion and \$73 billion (i.e., between 6% and 10% of the region's total exports in 2007).

⁷ Adler and Sosa (2013) stress that favorable terms of trade, triggered by the commodity-price boom, helped enhance Latin America's fiscal fundamentals.

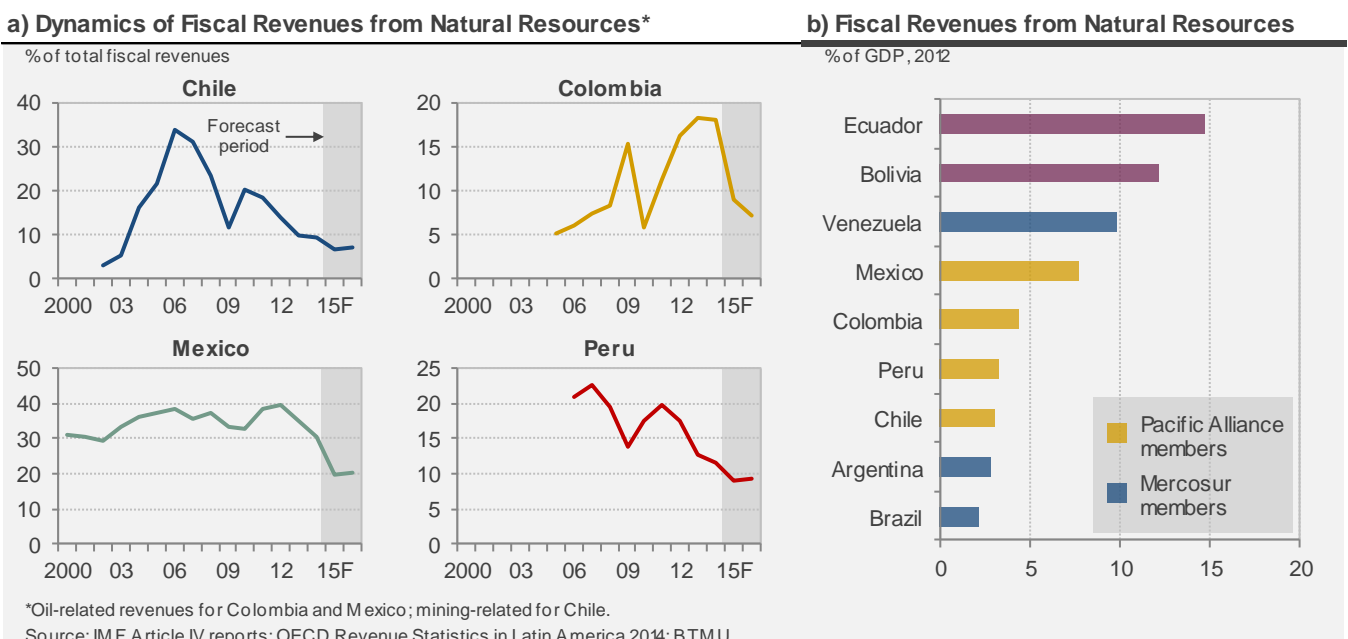
Commodity-related revenues represent a large fraction of governments' total income. And Fiscal revenues have been sagging in tandem with commodity prices lately.

decade or so cannot be solely attributed to the recent commodity cycle. Both robust economic growth and increased tax burden must have driven revenues up too. This makes it more challenging to determine how commodity-dependent Latin American governments are. One way to overcome this problem is to gauge the fiscal income (tax-related or not) that can be directly credited to the commodity sector. Some important insights are provided by this indicator.

The Argentine and Brazilian governments appear to be less exposed to fluctuations in the commodity markets than their peers.

- Commodity-related revenues have and continue to make up a meaningful portion of governments' total income (Figure 6-a). In Mexico, for example, around one-third of the government's revenues come from oil-related activities. Along similar lines, in Chile and Peru, the mining sector has been and continues to be a key source of fiscal income. The same is true for Colombia's oil sector.
- The recent sharp slowdown in fiscal revenue growth was driven (at least in part) by the fall in commodity prices. And since prices are expected to stay soft in the foreseeable future, fiscal revenues will probably not pick up anytime soon.
- Argentina and Brazil, both members of Mercosur, seemed to be less exposed to fiscal revenues from natural resources than the Pacific Alliance members in 2012 (Figure 6-b), when commodity prices began to show signs of weakening. And yet their fiscal positions and economies have deteriorated far more than that of their neighbors since then, suggesting there

Figure 6: Fiscal Revenue from Commodity-Related Activity



could be other factors behind.

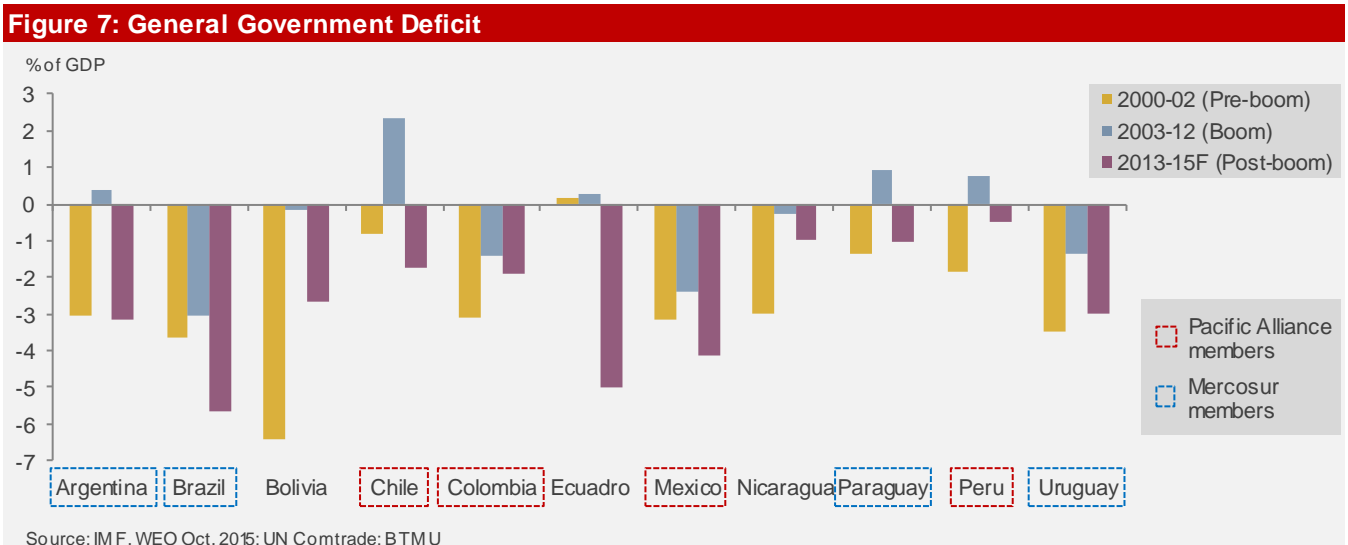
Slashing spending to balance the budget could be economically painful and politically infeasible for governments that have overspent and not improved their fiscal position during the boom period.

There is no doubt the commodity boom has been tremendously beneficial to Latin American governments, as it boosted revenues to the highest level on record, and allowed them to increase public investments and social spending. But paradoxically, it has also made governments more dependent on commodity revenues, and more prone to overspend and keep undue fiscal stimulus⁸, which wound up making them more vulnerable to a downturn in the commodity market, as evidenced in the widening fiscal deficit of all net commodity exporters (Figure 7).

In theory, those fiscal risks can be swiftly restrained if governments adjust their spending to balance the budget. Most of the resulting spillover effects would thus be fenced off from the real economy. That should not be a daunting task for countries with a relatively strong fiscal framework (e.g., members of Pacific Alliance), and have saved the extraordinary windfall in foreign assets, or used it to enhance their fiscal accounts. But for governments that have squandered the windfalls on unproductive spending, and made little headway in firming up their accounts; trimming the budget could be economically painful and politically infeasible, as observed in Brazil. Worse yet, the lingering fiscal fragility could act as an amplifier of other domestic and external shocks.

2.3. Investment

It is no coincidence that Chile, Colombia and Peru, all major net commodity exporters, experienced a massive investment boom



⁸ Adler and Magud (2013) argue that the income windfalls associated with the recent commodity boom was much larger than those observed during the 1970s. Yet it seems the effort to save those windfalls was not stronger than before.

Latin America enjoyed a massive and protracted investment boom during the last decade.

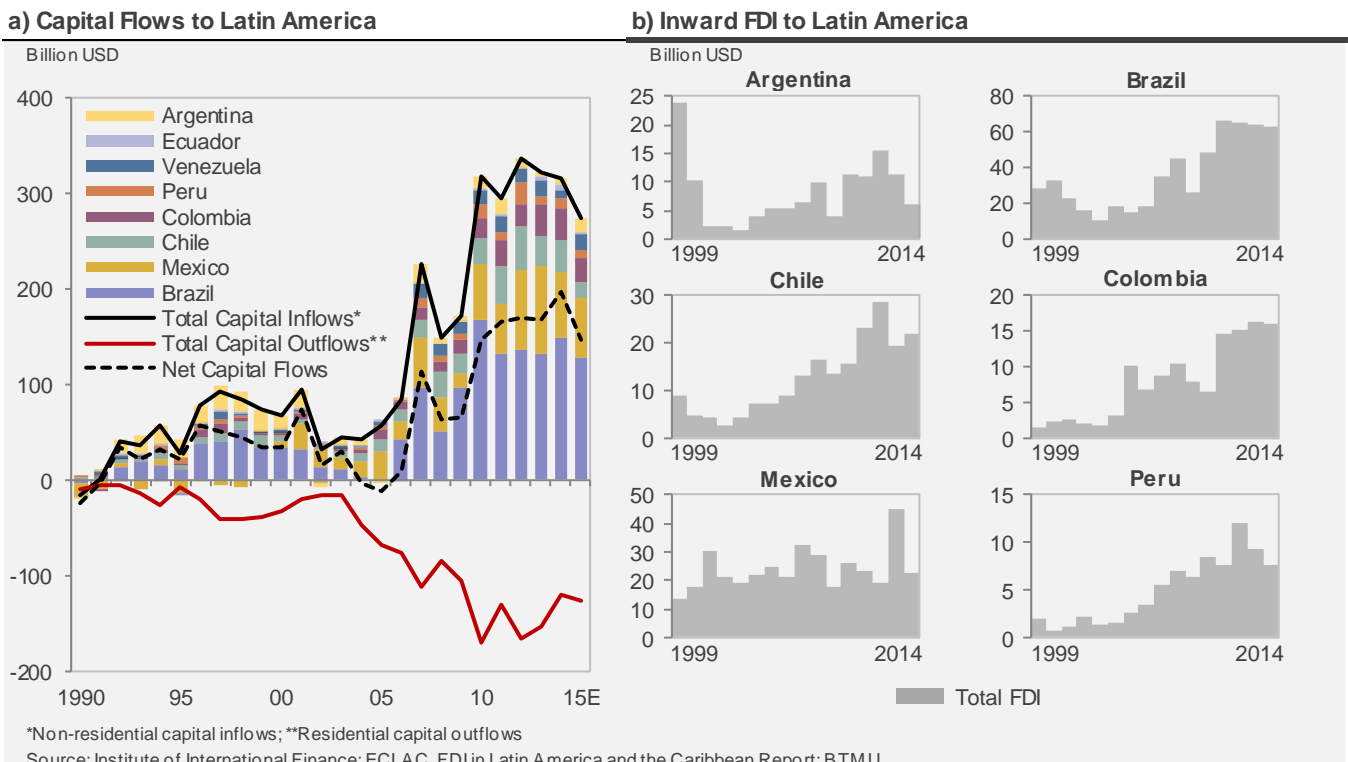
Commodity prices were and continue to be a driving factor for investment growth in Latin America.

period during the last decade or so, when at the same time commodity prices skyrocketed to record levels. Even in Argentina, a country that has not yet regained access to the global capital markets since its default in 2002, gross fixed capital formation (a measure of investment) grew at an average annual rate of 6.8% between 2005 and 2014. It is not coincidence either that investment spending has been falling in most countries of the region lately.

In principle, the co-movement between investments and commodity prices does not imply a causal relationship nor confirm the sheer dependence of the former on the latter. The enormous inflow of capitals to Latin America, largely spurred by generous global liquidity conditions, must have been another major driving force as well (Figure 8-a). Still, there is persuasive evidence that commodity prices were and continue to be a driving factor for investment growth in most major economies of the region.

- The large inflows of foreign direct investments (FDI) to major net commodity exporters during the last decade or so were driven by sky-high commodity prices (Figure 8-b). True, this could have been fueled by favorable global liquidity conditions as well, but the fact that the commodity sector attracted more FDI than other sectors, which is reflected in its increased share (Figure 9-a), suggests foreign investors were lured in

Figure 8: Capital Flows and FDI to Latin America



part by the rise in agricultural, metal and energy prices. It is important to note that FDI flows amount to a small fraction of the overall investments, and do not say much about the preferences and behavior of domestic investors, at least not directly. However, there are no compelling reasons to believe domestic and foreign investors may have behaved differently either.

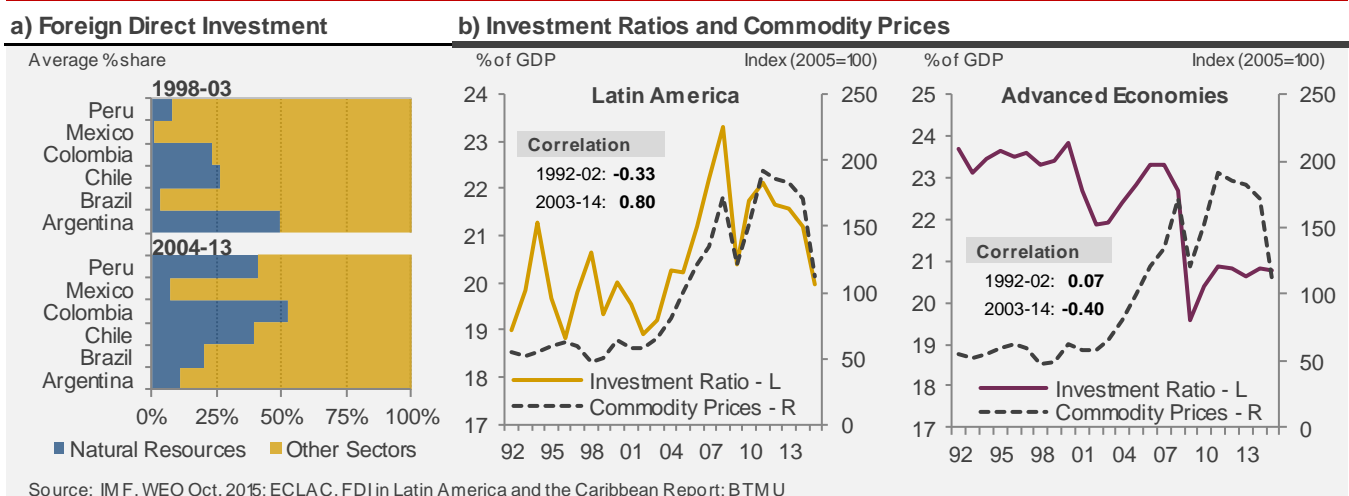
FDI and trade data show similar patterns of dependence. The Andean economies display high degree of commodity dependence.

- FDI data reveal patterns of dependence among LA6 countries that are fairly similar to those described in the previous sections. Chile, Colombia and Peru, the so-called Andean countries, display high degree of reliance: more than 40% of the total FDI between 2004 and 2013 went to the commodity sector (Figure 9-a). Mexico and Brazil, in contrast, show a relatively low degree of dependence. The visible surprise is Argentina, but capital controls and its isolation from the global capital markets may have played a vital role in deterring foreign investors.

Commodity prices have been a major driving factor of investments in all major Latin American economies except Mexico.

- There is a strong correlation between global commodity prices and Latin America's investment ratio (Figure 9-b). The ratio rose sharply from 2003 to 2008 in tandem with commodity prices. It plunged in 2009 due to the global financial crisis, but briefly recovered in 2010 and 2011 as most prices did. It has dropped steadily since then. Of course, correlation is not always causation, but it might hold in this case. Indeed, the weak correlation between the investment ratios of Latin American and advanced economies suggests the absent of a powerful and common factor, such as the abundance of liquidity, driving capital spending across the

Figure 9: Investment and Commodity Prices



globe. In other words, a force that influences both groups differently should have been the driving factor behind Latin America's investment boom. The obvious candidate is the commodity-price boom. We tested this hypothesis through different econometric techniques and found statistical evidence supporting it⁹, which is in line with other studies¹⁰. Still, the lack of data makes it hard to gauge the degree of dependence, but recent empirical evidence suggests commodity prices have been a major driving factor of investments in all LA6 countries except Mexico¹¹.

⁹ We used Granger test to see whether swings in global commodity prices have causal effects on Latin America's investment ratio. We found statistical evidence supporting the hypothesis, but Granger test can produce biased results when the variables are first-order integrated, so then we decided to analyze whether the variables have a long-run relationship (i.e., whether they cointegrate or not). Again, the evidence seems to support the hypothesis.

¹⁰ See World Economic Outlook (October 2015, chapter 2), Monetary Policy Report of Chile's central bank (June 2015), and IMF Selected Issues Paper on Peru (May 2015).

¹¹ See Chapter 4 of the April 2015 Regional Economic Outlook: Western Hemisphere.

3. Concluding Remarks

Latin American economies are, in general, commodity-dependent. But the degree of dependence varies greatly across countries, even among those labeled as “heavily-dependent”.

Yes, Latin America as a region is, in essence, commodity-dependent: exports are severely concentrated in raw materials; governments tend to rely on revenues from natural resource to finance their budgets; and investments are, to some degree, swayed by commodity cycles. Nevertheless, on a country level, the reality is in fact far more complex and interesting.

- The degree of dependence varies greatly across countries, even among those that are frequently labeled as “heavily-dependents” (Figure 10). Chile, Colombia and Peru, for instance, show a relatively high level. In contrast, Argentina and Brazil do not exhibit the same patterns as commonly believed. In fact, natural resources seem to be less influential in the two largest economies of South America.
- Countries have different patterns of dependence (Figure 10). For example, commodities play a critical role in providing revenues to the Mexican government, but not so much in driving exports. On the contrary, raw materials are heavily weighted in Argentina and Brazil’s exports, but neither country exhibits a high level of commodity dependence in its fiscal revenues.

The end of the commodity-price boom has been a major force behind the sharp slowdown in most Latin American economies.

Now, two implications are clear from the previous findings. First, the end of the commodity-price boom has been a major force behind the sharp slowdown in most Latin American economies, as the fall in prices and its ongoing effects are now discernible in the light of the patterns of commodity dependence described above. Exports and investments, for instance, have been plunging over the last two or three years, leading most currencies to depreciate. Fiscal revenues

Figure 10: Degree of Commodity Dependence of Major Latin American Economies*

COUNTRY	TRADE		PUBLIC FINANCE	INVESTMENT
	Gross Exports	Net Exports	Fiscal Revenues	FDI
Argentina	High	Moderate	Low	Low
Brazil	High	Low	Low	Moderate
Chile	Very High	High	Moderate	High
Colombia	Very High	Moderate	Moderate	High
Mexico	Very Low	Very Low	High	Very Low
Peru	Very High	Moderate	Moderate	High

*Own classification based on previous analysis
Source: BTMU

have been falling lately, forcing governments to slash spending. Likewise, households have begun to spend less, triggering a self-reinforcing cycle of lower domestic demand and weaker GDP growth. All this evidently does not bode well for the region's growth prospects: should commodity prices remain low in the coming years; major Latin American economies, perhaps except Mexico, will probably grow at a much slower pace than during the last decade. This makes it even more pressing to implement the structural reforms needed to put the region back on a sustainable and higher economic growth path.

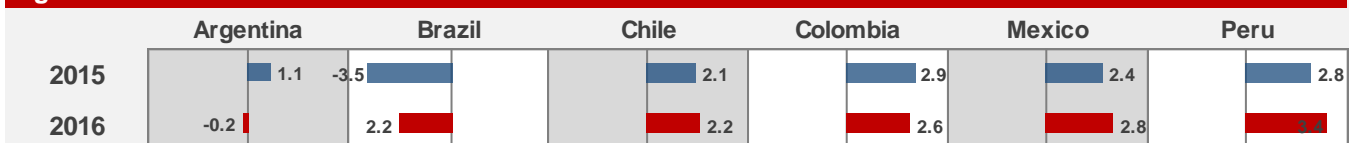
The slump in commodity prices does not explain the stark divergence in economic performance among major economies of the region.

Second, the downturn in commodity prices does not explain the stark divergence in economic performance among major economies of the region (Figure 11). Brazil, a country with a relatively moderate reliance on commodities, is currently mired in a deep and protracted economic recession. And its neighbor Argentina is not doing much better either. Intriguingly, the Andean economies, which exhibit a higher degree of commodity dependence, have so far weathered the downturn and are expected to grow above 2% in 2015 and 2016.

A high degree of dependence does not necessarily make an economy more vulnerable to swings in the commodity market. It very much depends on how a country manages the extraordinary windfalls throughout the boom and bust cycle.

The divergence between those two groups suggests that a high degree of dependence does not necessarily make an economy more vulnerable to swings in the commodity market than other with a low level. It very much hinges on how a country manages the commodity cycles. In countries with relatively strong commitment to fiscal and monetary discipline such as Chile, Colombia and Peru; rules are in place to prevent governments from squandering the extraordinary windfall during boom periods, indirectly encouraging them to save it for the rainy days. Thus, it is hardly surprising that those three countries, in contrast to Argentina and Brazil, were able to use countercyclical measures to cushion the recent impact of lower commodity prices. Worse yet, when boom periods come to an end, the underlying weaknesses in the economy, which are frequently concealed by the bonanza, tend to be exposed and act as an amplifier of other shocks. This could well be the case of Brazil.

Figure 11: Forecasted GDP Growth Rates



Source: Consensus Economics; BTMU

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Appendix I

Definition of Primary Commodities

Energy	Metals	Agriculture
SITC 3 <i>(including but not exclusively)</i> <ul style="list-style-type: none"> Oil Natural gas 	SITC 27, 28 and 68 <i>(including but not exclusively)</i> <ul style="list-style-type: none"> Copper Aluminum Iron ore Nickel Zinc Lead Silver 	SITC 0, 1, 2 and 4 <i>(including but not exclusively)</i> <ul style="list-style-type: none"> Food and live animals (e.g. soybeans) Beverages and tobacco Animal and vegetable oils, fats and waxes (e.g. soybean oil)

SITC: Standard International Trade Classification

Appendix II

The Importance of China in the Commodity Market: Statistics form Selected Commodities

Table A1: Oil

Global share (%), average

Period	Consumption	Imports
1980-1984	2.8	-
1985-1989	3.4	0.1
1990-1994	4.0	0.6
1995-1999	5.3	1.5
2000-2004	6.8	3.9
2005-2009	8.7	7.0
2010-2014	11.1	10.1

Source: US Energy Information Administration

Table A2: Copper

Global share (%), average

Period	Consumption*	Production*	Imports**
1995-1999	10.0	8.6	5.9
2000-2004	17.3	11.0	15.8
2005-2009	27.7	19.0	22.9
2010-2014	44.1	29.3	39.1

*Only include refined copper; ** include copper concentrates and blister and refined copper

Source: Comisión Chilena del Cobre

Table A3: Corn

Global share (%), average

Period	Consumption	Production
1980-1984	14.5	15.0
1985-1989	14.6	16.1
1990-1994	17.0	19.3
1995-1999	18.9	20.2
2000-2004	19.8	19.3
2005-2009	19.4	19.8
2010-2014	21.6	21.7

Source: US Department of Agriculture

Table A4: Soybean

Global share (%), average

Period	Soybean Meal		Soybean Oil	
	Consumption	Production	Consumption	Production
1980-1984	1.8	2.4	1.9	1.5
1985-1989	2.1	4.4	5.4	3.5
1990-1994	3.4	5.1	6.5	4.2
1995-1999	9.5	7.6	13.2	6.6
2000-2004	13.6	13.9	17.4	13.1
2005-2009	19.0	19.1	24.4	18.2
2010-2014	26.4	26.5	28.6	25.3

Source: US Department of Agriculture

For reference to our previous reports, see our website at: <http://researchreports.mufg-americas.com/reports/economic-research>

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