Latin America's Decade of Development-less Growth[1]

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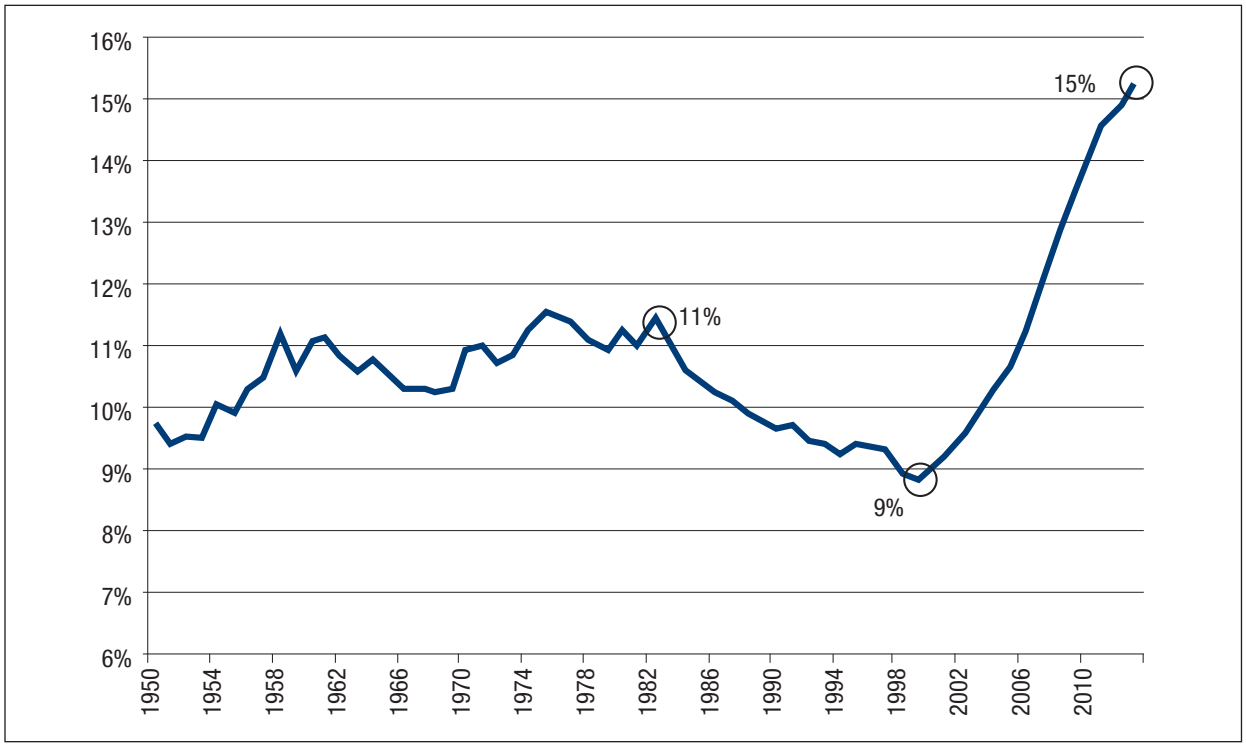
A figure speaks a thousand words. And looking at Figure 1, which shows the population-weighted average income per capita in emerging economies relative to the U.S., there could be no doubt in anybody's mind that since the late 1990s something rather extraordinary happened—a new phenomenon with no antecedents in the post-WWII period—that propelled emerging economies into an exponential process of convergence.[2,3]

This takeoff took relative income in emerging economies to levels, albeit still low relative to the U.S., twice those of the late 1990s and the highest since the 1950s. If such a breathtaking path of convergence were to continue, it would mean that the relative income of the typical emerging economy citizen would converge to that of the typical U.S. citizen in three generations.[4]

Needless to say, this extraordinary phenomenon had enormous consequences for the welfare of millions of citizens in emerging economies. It lifted more than 500 million people out from poverty and extreme poverty, and gave rise to the so-called emerging middle classes that increased at a rate of 150 million per year.[5]

FIGURE 1. CONVERGENCE IN EMERGING ECONOMIES 1950-2013
(Emerging markets PPP-adjusted per capita real GDP relative to the U.S.)



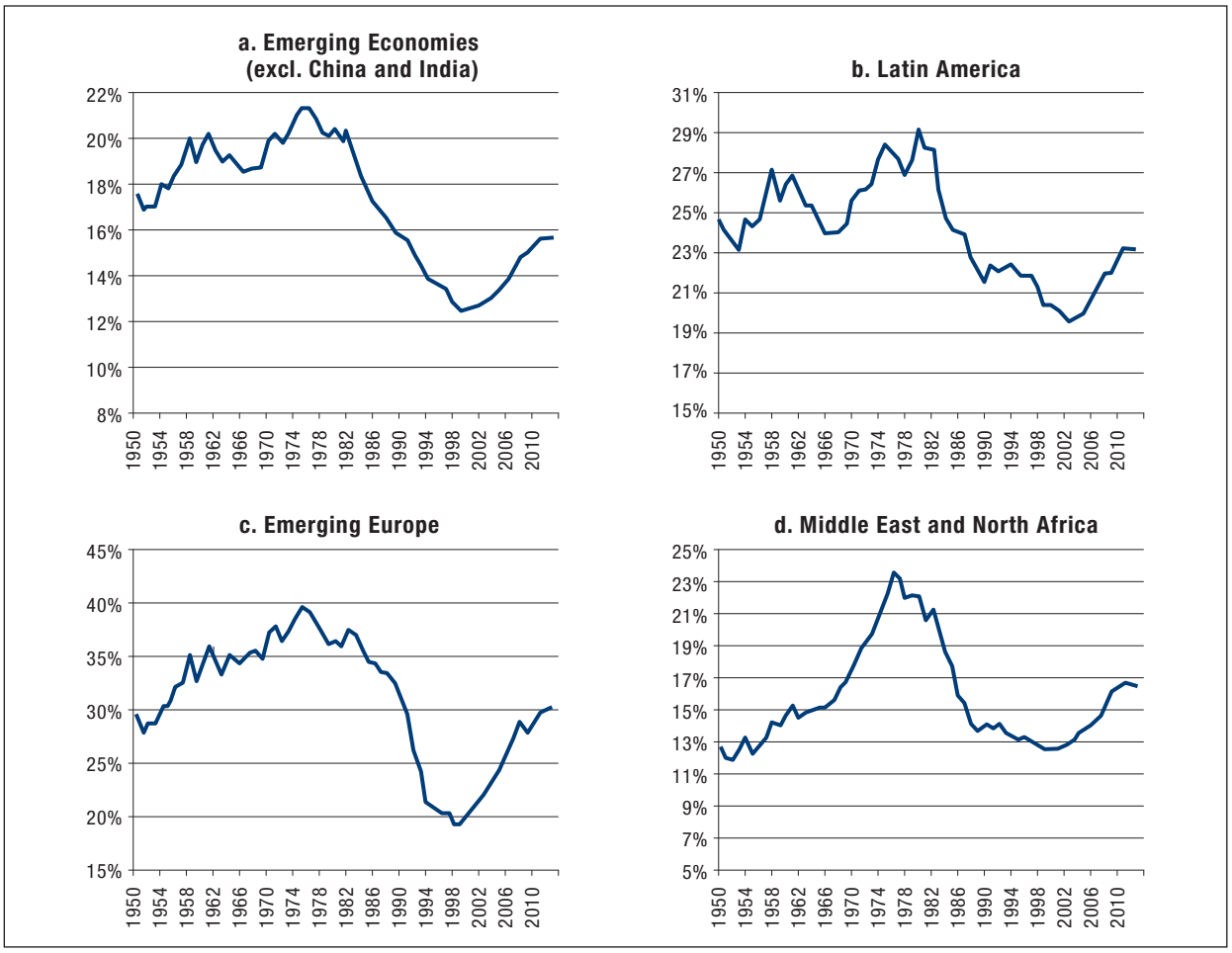
Note: Emerging markets refers to the population-weighted average of a subset of emergin market economies as defined by the IMF's World Economic Outlook. This set of countries comprises more than 80 percent of the GDP of all emergin market economies.
Source: The Conference Board Total Economy Database.™

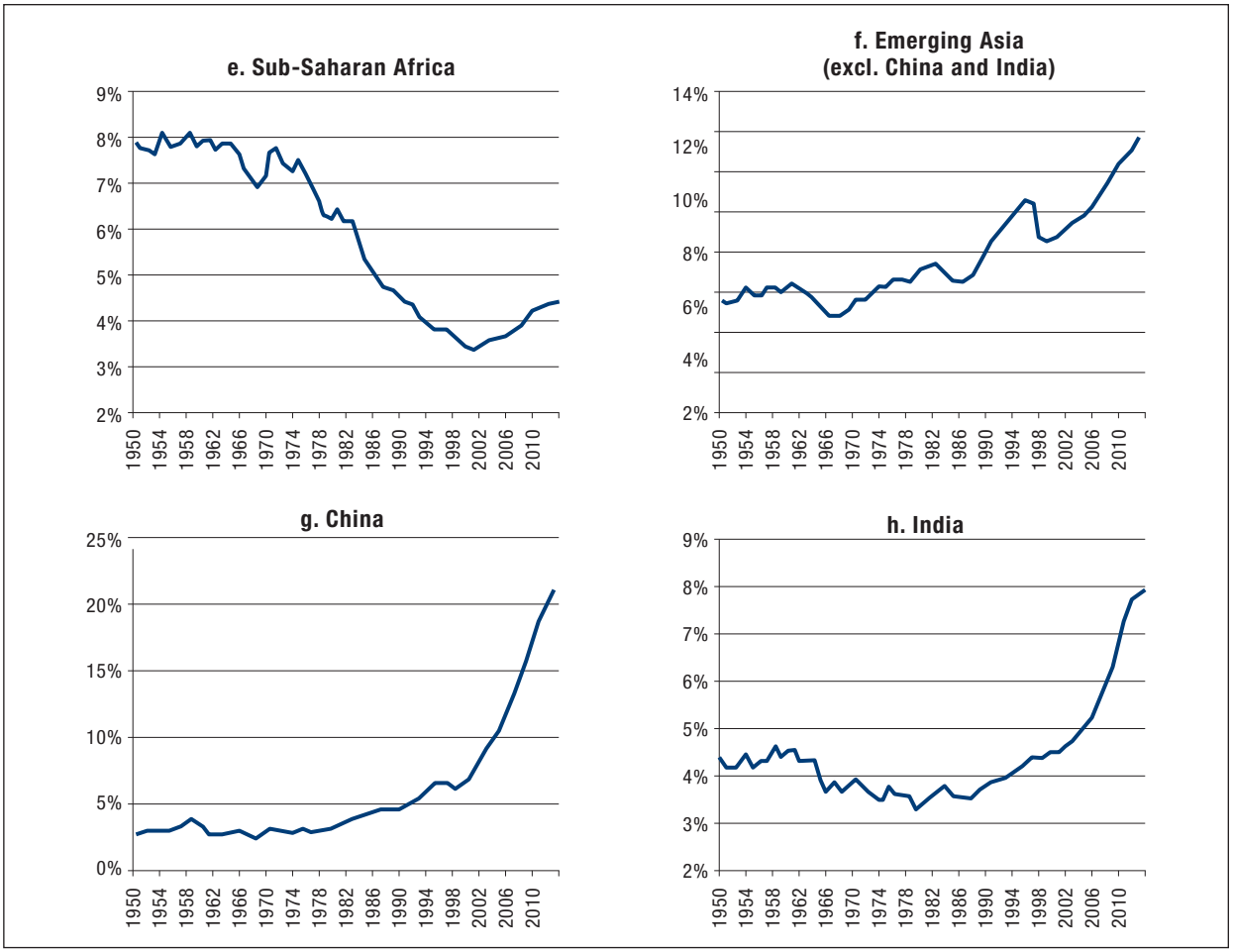
It seems that something rather extraordinary happened in emerging economies. Or did it? Let's look again. When China and India are removed from the emerging markets sample, Figure 1 becomes Figure 2a. In Figure 2a, one can still discern a period of convergence starting in the late 1990s. But convergence was not nearly as strong—relative income is still far below its previous heights—and it occurred after a period of divergence that started in the mid-1970s after the first oil shock, in the early 1980s with the debt crisis, and in the late 1980s with post-Berlin Wall meltdown in Eastern European economies.

This pattern in population-weighted relative income is actually characteristic of every emerging region with the exception of emerging Asia (see Figure 2 panels b-f). Latin America, emerging Europe, Middle East and North Africa, and sub-Saharan Africa all display a similar pattern to Figure 2a.[6] Only Asia differs markedly from this pattern. On the one hand, China and India have seen exponential convergence since the late 1990s (see Figure 2 panels g-h), while the rest of emerging Asia has experienced a sustained but much slower convergence since the mid-1960s (see Figure 2, panel f).

This extraordinary phenomenon of exponential convergence is more a story about China and, to a lesser extent, India. Since China and India represent 37 percent of the world population and 43 percent of the population in emerging economies, needless to say this is an event of immense proportions. If it were to continue, the consequences for humanity would be huge. But be that as it may, it does not tell the whole story of emerging economies as a group.

FIGURE 2. CONVERGENCE PER EMERGING REGION 1950-2013
(PPP-adjusted per capita real GDP relative to the U.S.)





Note: Regional aggregates are defined as in the IMF's World Economic Outlook but only including major economies in each region that represent a minimum of 80 percent of regional GDP. Regions are calculated as population-weighted averages. Countries included in Latin America, Emerging Europe, Emerging Asia (excluding China and India), Middle East and North Africa and sub-Saharan Africa, represent 91, 88, 84, 81 and 81 percent of the corresponding region's GDP, respectively.
Source: The Conference Board Total Economy Database.™

More specifically, it does not tell the story of Latin America.

From the Latin American perspective, the relevant question we need to ask is whether the recent bout of convergence that started in 2004, after a quarter of a century of relative income decline, is a break with the past or just a short-lived phenomenon. To address this question, we will first explore the arithmetic of convergence, i.e., whether mechanical projections are consistent with the convergence hypothesis. We will then explore the economics of convergence, i.e., whether Latin America's income convergence was associated with a comparable convergence in growth determinants. Finally, we offer some concluding thoughts.

The Arithmetic of Convergence

Let us begin by defining precisely what we mean by convergence. To that end, we need to establish a departure and arrival point. For the purposes of this essay, convergence is defined as a process whereby a country's income per capita starts at or below one third of U.S. income per capita at any point in time since 1950, and rises to or above two-thirds of U.S. income per capita.[7]

According to this definition, since 1950 growth-convergence-development miracles represent only 3 percent of emerging countries as currently classified by the IMF's World Economic Outlook. Only five countries managed to achieve

this: Japan, South Korea, Taiwan, Hong Kong and Singapore. They started the convergence process at levels between 10 and 29 percent of U.S. income per capita (Korea and Hong Kong, respectively) and took them between 16 and 44 years to converge (Singapore and South Korea, respectively). Income per capita growth rates ranged from a minimum of 6.1 percent per year to a maximum 8.5 percent per year (Hong Kong and Japan, respectively) during the convergence period (see Table 1).

In other words, convergence towards income per capita levels of rich countries is an extremely rare event. In fact, even if we only consider the sample of 24 countries that had any chance of converging in the 1950-2013 period—the updated sample of success stories of sustained high growth defined by the Commission on Growth and Development chaired by Nobel Prize winner Michael Spence—only 21 percent made it to the finish line.[8]

What about Latin America? If we consider the consensus forecast growth rates for the period 2014-2018 for the seven major countries in the region, henceforth LAC-7, the population-weighted per capita expected growth rate is 1.9 percent per year, similar to that of the U.S., indicating that the process of convergence that the region experienced in the previous decade is expected to stall.[9] Based on these projections, not a single Latin American country would converge to two-thirds of U.S. income per capita in two generations.[10]

Put differently, the region should grow at an average rate of 4.5 percent per year to converge to two-thirds of U.S income in 40 years, the number of years it took Korea to converge to high income country levels. To put the odds into context, in the 63 years since 1950, per capita GDP in LAC-7 grew at a rate of 4.5 percent only 8 percent of the time. In other words, the arithmetic does not seem to be on the side of the region.

The Economics of Convergence

What about the economics? To answer this question we must analyze whether Latin America's process of income convergence in the last decade was also associated with a similar convergence in the key drivers of growth.[11] If income convergence towards income levels of advanced economies, as defined by the IMF's World Economic Outlook, was not accompanied by a comparable process of convergence in the drivers of growth, it is difficult to see how the process of convergence in income will be sustainable, and was thus more likely triggered by other, more temporary factors. For example, it has been extensively argued that an extremely favorable external environment—with high commodity prices that LAC-7 both produces

TABLE 1. GROWTH MIRACLES AND CONVERGENCE

	Beginning of Convergence Year	End of Covergence Year	Years of Convergence	Relative Income at Beginning of Convergence Year	Relative Income in 2013	Per Capita GDP Growth During Convergence
Hong Kong	1967	1987	20	29%	93%	6.1%
Japan	1950	1970	20	21%	72%	8.5%
Singapore	1965	1981	16	25%	116%	8.1%
South Korea	1966	2010	44	10%	64%	6.3%
Taiwan	1967	2006	39	14%	76%	6.1%

Note: Convergence is defined as a process whereby a country's income per capita starts at or below one third of U.S. income per capita and rises to or above two-thirds of U.S. Income per capita. Income per capita is measured as PPP-adjusted per capita real GDP.
Source: Own calculations based on The Conference Board Total Economy Database.™

and exports, abundant international liquidity and low costs of capital and financial resources—gave growth in the region an unusual boost in the last decade.[12]

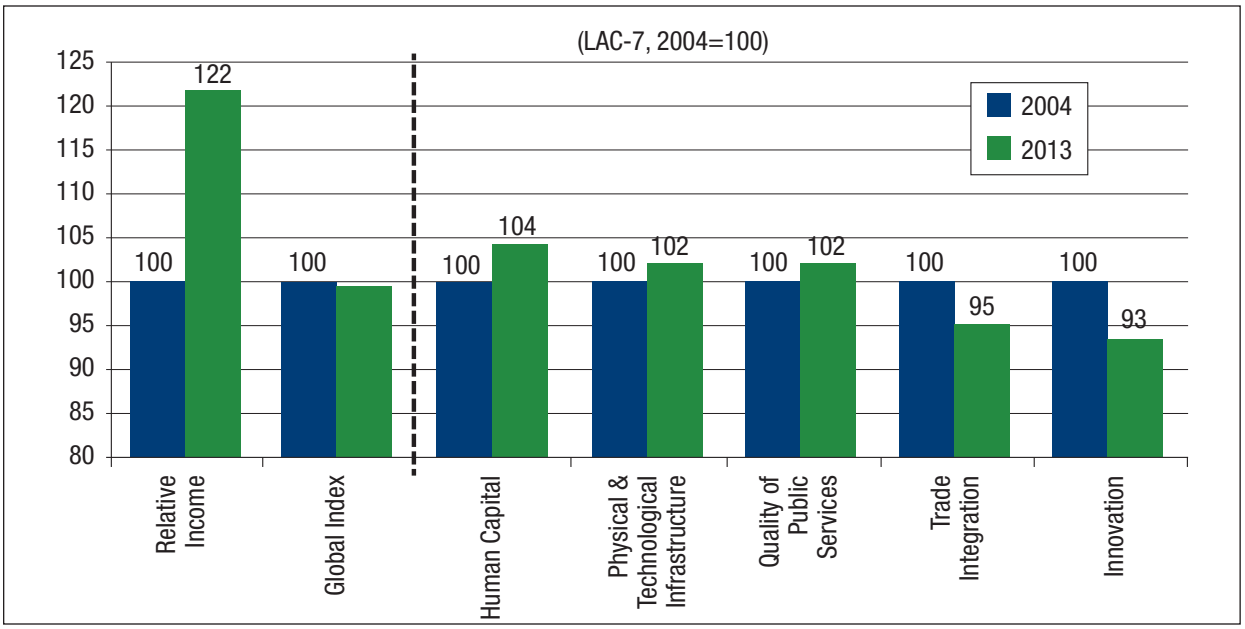
To analyze this issue further, we consider a subset of the most widely used growth determinants in cross-country regressions popularized by Barro (1991) that have been shown to have a positive and significant impact on growth: trade integration, physical and technological infrastructure, human capital, innovation, and the quality of public services.[13,14]

Figure 3 illustrates the results. In contrast to relative income, during the last decade LAC-7 countries failed to converge towards advanced country levels in every growth driver. The overall index of growth drivers—the simple average of the five sub-indexes—remained unchanged in the last decade relative to the equivalent index for advanced economies. By and large the latter holds true for every LAC-7 country. It is worth noting, however, that Colombia experienced the largest improvement in growth drivers relative to advanced economies, and was the only country that actually improved in every single growth driver in the last decade. Although Chile's improvement in growth drivers relative to advanced economies was much slower than in Colombia, it is the country in the region where the *level* of growth drivers is closer to those of advanced economies.

This lack of convergence in the key drivers of growth contrasts markedly with what happened in the small group of countries that did converge to advanced country income levels. Figure 4 illustrates the case of Korea. Every key driver of growth—trade integration, human capital, and physical and technological infrastructure—were converging to advanced country levels hand-in-hand with income convergence.[15]

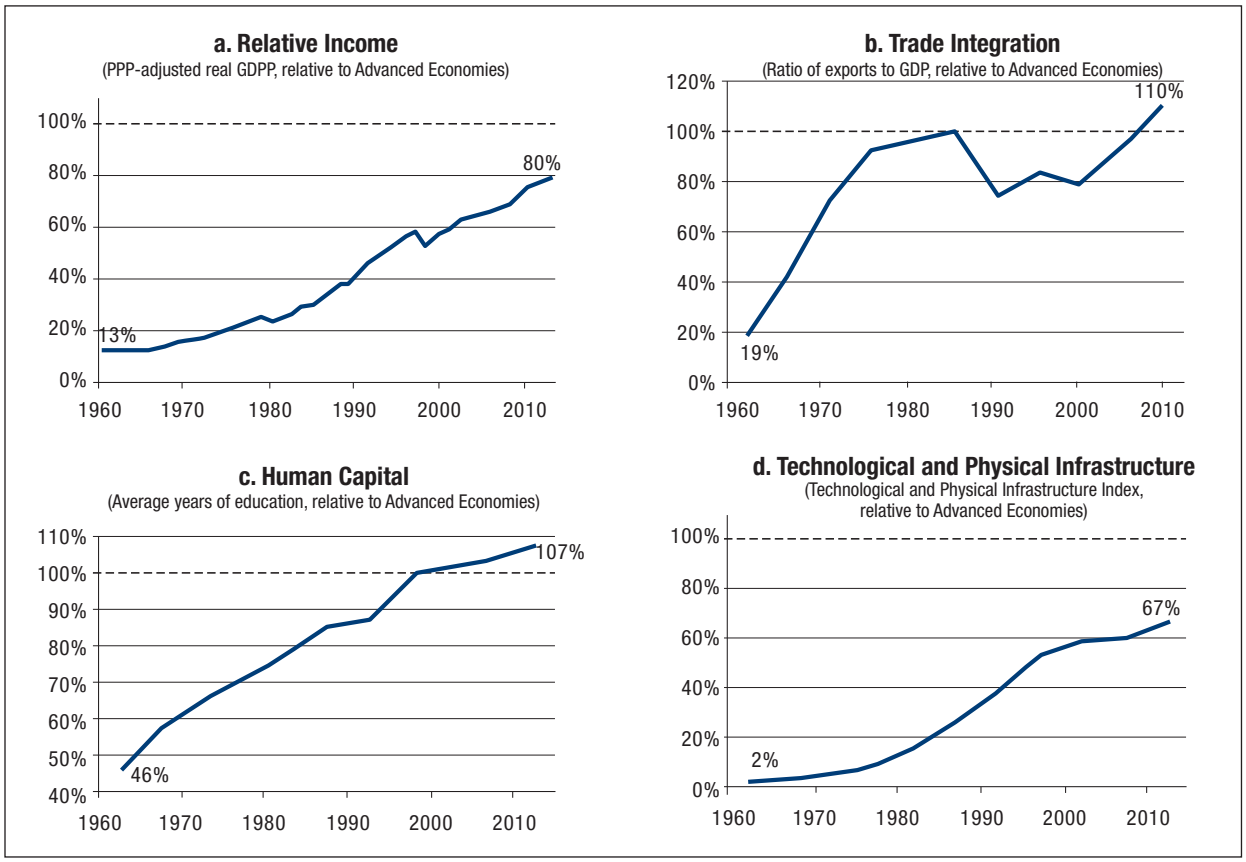
Moreover, just as the drivers of growth failed to converge in Latin America in the last decade, nor was income convergence accompanied by any comparable convergence in key indicators of development, such as equality of opportunity by income level and gender, the quality of the environment and personal security (see Figure 5).[16]

FIGURE 3. CONVERGENCE OF INCOME AND GROWTH DRIVERS IN LATIN AMERICA 1950-2013



Note: LAC-7 is the simple average of Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela, which account for 93 percent of Latin America's GDP. For details on the calculation of the indexes see Appendix.
Source: The Conference Board Total Economy Database™, World Economic Forum, Barro-Lee Dataset, The World Bank Development Indicators, NetIndex | Speedtest, OECD-WTO and World Intellectual Property Organization.

FIGURE 4. THE KOREAN MIRACLE



Advanced Economies refers to Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom and United States. The Technological and Physical Infrastructure Index includes road density and number of telephone lines and mobile phones per 1,000 workers.
Source: IMF World Economic Outlook, World Bank, The World Bank Development Indicators, Barro-Lee Dataset and Calderón and Servén (2004) dataset.

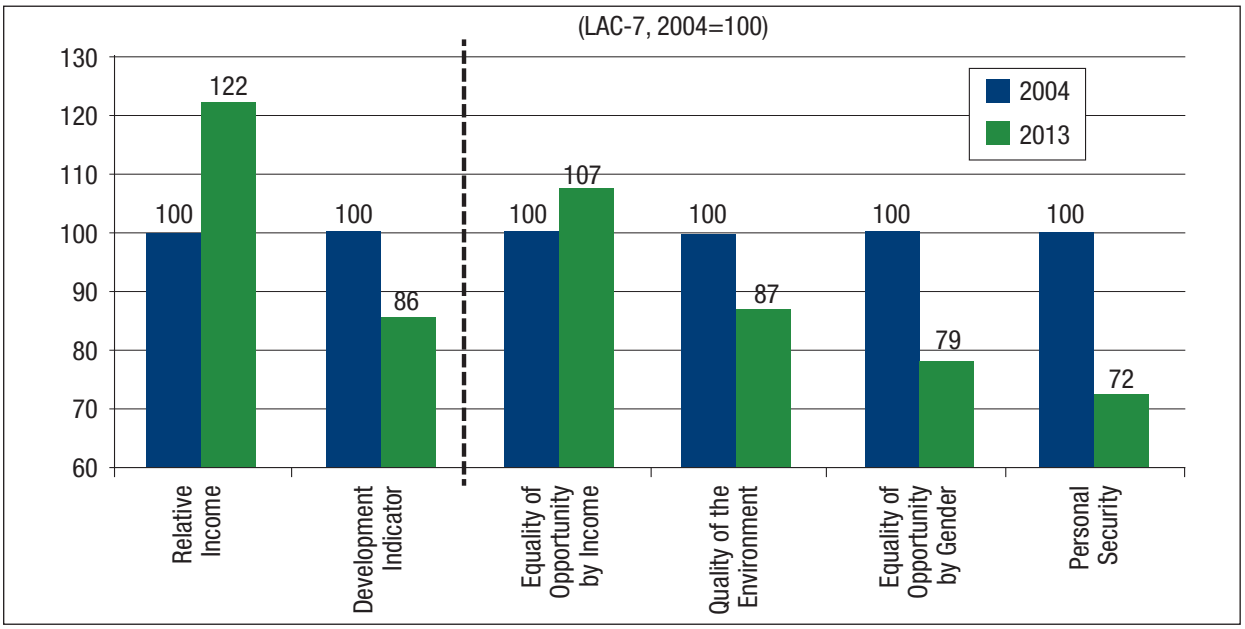
Looking Ahead

Latin America had a decade of uninterrupted high growth rates—with the sole exception of 2009 in the aftermath of the Lehman crisis—that put an end to a quarter of a century of relative decline in income per capita levels vis-à-vis advanced economies. However, high growth and income convergence were largely the result of an unusually favorable external environment, rather than the result of convergence to advanced country levels in the key drivers of growth. Moreover, income convergence was not associated either with a comparable convergence in key indicators of development. Fundamentally, the last was a decade of "development-less growth" in Latin America.

With the extremely favorable external conditions already behind us—China's growth rates are expected to cool-off significantly, commodity prices will likely soften and world interest rates look set to edge up—the region is expected to grow at mediocre rates of around 2 percent in per capita terms for the foreseeable future. With this level of growth, the dream of convergence and development is unlikely to be realized any time soon.

To avoid such a fate the region must make a renewed effort to deepen integration into the world economy, into global supply chains, and within the region itself; to improve human capital, the rate of innovation and the quality of public services; to upgrade physical and technological infrastructure; and to reduce social exclusion, inequality,

FIGURE 5. CONVERGENCE OF INCOME AND DEVELOPMENT INDICATORS



Note: LAC-7 is the simple average of Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela, which account for 93 percent of Latin America's GDP. For details on the calculation of the indexes see Appendix.
Source: The Conference Board Total Economy Database™, World Economic Forum, Barro-Lee Dataset, The World Bank Development Indicators, NetIndex | Speedtest, OECD-WTO and World Intellectual Property Organization.

personal insecurity and the pollution of our cities. All of these improvements will be needed to revitalize growth—through domestic rather than external tailwinds—and to put the region on a path of convergence and development.

Although the challenges ahead appear to be huge, there is plenty of room for optimism. First, Latin America has built a sound platform to launch a process of development. Democracy has by-and-large consolidated across the region and an entire generation has now grown up to see elections as the only legitimate way to select national leaders.[17] In terms of democratic development, Latin America ranks first among emerging regions. Moreover, it is for the most part a relatively stable region with no armed conflicts and few insurgency movements threatening the authority of the state.

Second, a sizeable group of major countries in Latin America have by now built a long track record of sound macroeconomic performance.[18] An entire generation has now grown up with low and relatively stable inflation and reasonably healthy public finances. Moreover, regulation and supervision of the banking system has improved significantly in recent years.

Third, the region could be just steps away from major economic integration. Most Latin American countries in the Pacific Coast have bilateral free trade agreements (FTAs) with their North American neighbors (11 countries with the U.S. and seven countries with Canada). Were these countries to harmonize current bilateral trade agreements among themselves—in the way Pacific Alliance members have been doing—a huge economic space would be born: a Trans-American Partnership that would comprise 620 million consumers, and have a combined GDP of more than $22 trillion (larger than the EU's, and more than double that of China). Were such a partnership on the Pacific side of the Americas to gain traction, it could eventually be extended to Atlantic partners, in particular Brazil and other of Mercosur countries. The spirit of the 1994 Summit of the Americas, where U.S. President Bill Clinton and his Latin American counterparts set out a grand vision for

the hemisphere by launching the Free Trade Area of the Americas, could then be rekindled.

Latin America's development path will be more akin to that of Spain and Portugal than to the Asian miracles. In Spain and Portugal democratization came first, economic integration (with the European Union) second, and development last. Chile, the only Latin American country on its way to the third stage, is a vibrant example on how the region can accomplish exactly that.

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Endnotes

1. This report was written with the invaluable collaboration of the team of CERES research associates—Santiago García da Rosa, Rafael Guntin and Rafael Xavier—and research assistants—Federico Ganz and Mercedes Cejas. I would also like to thank very specially my colleague at Brookings, Guillermo Vuletin, for a thorough review of the first version of this essay and for suggesting the term "development-less growth". Julia Ruiz, research assistant at Brookings, also provided valuable comments.

2. We consider a subset of emerging market economies defined by the IMF's World Economic Outlook for which complete data are available. This set of countries comprises more than 80 percent of the GDP of all emerging market economies. Relative income is measured by PPP-adjusted per capita real GDP from The Conference Board. Our results would remain unchanged if PPP-adjusted per capita GDP from the Penn World Tables or per capita GDP in real U.S. dollars from the World Bank are used. Population-weighted averages measure the convergence of the income of the average citizen of emerging economies relative to the income of the average citizen in the U.S.

3. The phenomenon depicted in Figure 1 is the other side of the coin of the takeoff in population-weighted average real GDP growth rate which increases dramatically relative to the U.S. and to advanced economies.

4. Considering advanced economies—as defined by the IMF's World Economic Outlook— instead of the U.S., yields similar results.

5. Poverty is measured as the share of persons living below US$1.25 at Purchasing Power Parity (PPP), see Ravallion, Chen and Sangraula (2009). The middle class is measured as the number of persons that have a level of consumption between US$10 and US$100 per person per day as defined in Kharas and Gertz (2010) and Dervis and Kharas (2014) in this volume.

6. Regional aggregates are defined as in the IMF's World Economic Outlook but only including major economies in each region that represent a minimum of 80 percent of regional GDP. Countries included in Latin America,

emerging Europe, emerging Asia (excluding China and India), Middle East and North Africa and sub-Saharan Africa, represent 91, 88, 84, 81 and 81 percent of the corresponding region's GDP, respectively.

7. One third and two thirds of U.S. income per capita represent the mean minus one standard deviation and the mean plus one standard deviation, respectively, of the distribution of income per capita of all countries in our sample relative to that of the U.S. in 2013. The World Bank in its income classifications uses a different and much less stringent definition of high income countries. The World Bank's threshold to define a high income country is $12,745 per capita gross national income which represents 24 percent of U.S. per capita gross national income.

8. See Commission on Growth and Development (2008). Success stories of sustained high growth are defined as those countries that had an average growth rate per year of at least 7 percent for 25 consecutive years since 1950. The countries that meet the Commission's criterion through 2013 are Belize, Bhutan, Botswana, Brazil, Cambodia, China, Equatorial Guinea, Hong Kong, India, Indonesia, Japan, Malaysia, Maldives, Malta, Morocco, Mozambique, Oman, Singapore, South Korea, Sudan, Taiwan, Thailand, Uganda and Vietnam.

9. LAC-7 refers to the seven largest Latin American countries namely, Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela, which together account for 93 percent of the region's GDP

10. The closest would be Chile converging in 55 years. Considering advanced economies—as defined by the IMF's World Economic Outlook— instead of the U.S., yields similar results.

11. Throughout this section we use a simple average of LAC-7 economies since we are interested in analyzing the convergence of the average country. Using population-weighted averages yields similar results.

12. See Talvi (2014) for a recent analysis on the role of external factors as the key drivers of LAC-7 growth performance.

13. For a complete survey on cross-country growth regressions see Durlauf and Quah (1999) and Durlauf, Johnson and Temple (2005).

14. See Appendix for the definition of the variables used as drivers of growth.

15. Due to lack of time series data, we only show a subset of growth drivers for Korea. Korea's convergence started in 1970 and reached two thirds of U.S. income per capita levels in 2010.

16. See Appendix for the definition of the variables used as development indicators.

17. See The Economist (2014) and Talvi and Trinkunas (2013).

18. For a recent analysis see Talvi (2014).

Appendix. Growth Drivers and Development Indicators

This appendix presents the definitions and data sources of the growth drivers and development indicators presented in the text. Growth drivers are measured by 5 indicators: trade integration, human capital, innovation, physical and technological infrastructure, and the quality of public services. Each of these indicators contains one or more variables. Development indicators are measured by 4 indicators: equality of opportunity by income, equality of opportunity by gender, quality of the environment and personal security. Likewise, each development indicator contains one or more variables.

Each growth driver/development indicator is constructed as follows. First, for each variable, LAC-7 relative value with respect to Advanced Economies is calculated as:

$$Y_t^j = \frac{X_t^j LAC}{X_t^j Advanced}$$

where X_t^j is the simple average of variable j for all countries in LAC-7 ($X_t^j LAC$) and Advanced Economies ($X_t^j Advanced$) in the year t.

Then, the simple average of each variable contained in indicator i is calculated in order to construct the indicator:

$$I_t^i = \frac{\Sigma_j^n = 1 Y_t^{ji}}{n}$$

where I_t^i is indicator i in period t and Y_t^{ji} is the relative value of variable j in indicator i for year t. Each indicator is normalized to 100 in 2004. When data is not available for 2004 the first year available is used. When data is not available for 2013 the latest data available is used.

The overall indicator for growth drivers is given by:

$$I_t = \frac{\Sigma_i^m = 1 I_t^i}{m}$$

where is the overall index of growth drivers/development indicators at time t.

Data: Definitions and Sources

Growth Driver Indicators

Trade Integration Indicator

Trade Openness: measured as the ratio of total exports of goods and services to GDP. Data source: World Bank World Development Indicators.

Integration to Global Supply Chains: measured as the share of foreign inputs (backward participation) and domestically produced inputs used in third countries' exports (forward participation) in percentage of gross exports. For further details on the indicator's methodology see Koopman et al. (2010). Data is available for years 2005 and 2009. Due to lack of data, LAC-7 includes Argentina, Brazil, Chile and Mexico. Data Source: OECD-WTO.

Human Capital Indicator

Years of Education: measured as the average years of total education for individuals between 20 and 24 years. Data source: Barro-Lee Dataset.

Quality of Education: defined as educational achievement in standardized tests. Data source: Program for International Student Assessment—OECD, World Economic Forum.

Innovation Indicator

Research and Development: defined as company spending on R&D. Data source: World Economic Forum.

Tertiary Education: defined as the population between 25 and 34 years that have completed tertiary education. Source: Barro-Lee Dataset.

Patents: defined as patent applications per million people. Data source: World International Property Rights.

Royalties: defined as receipts from Royalties and License Fees in current dollars. Due to lack of data the LAC-7 aggregate excludes Venezuela. Data source: WTO.

Physical and Technological Infrastructure Indicator

Physical and Technological Infrastructure variables: quality of railroads, quality of roads, quality of air transport, quality of ports and quality of electricity supply. Data source: World Economic Forum.

Broadband Speed: average of download and upload speed expressed in kbps. Data source: NetIndex | Speedtest.

Quality of Public Services Indicator

Quality of Public Services variables: Government Effectiveness, Regulatory Quality, and Control of Corruption. Data source: World Bank Worldwide Governance Indicators.

Development Indicators

Equality of Opportunity by Income: measured as the difference between the proportion of insufficient scores in the lowest socioeconomic quintile and the proportion of insufficient scores in the highest socioeconomic quintile in the Program for International Student Assessment (PISA) tests. Data source: PISA-OECD.

Equality of Opportunity by Gender: measured as the Gender Inequality Index. Given that the Index is available since 2010, it was reconstructed for 2004 following the United Nations methodology. Source: United Nations Development Program and World Bank World Development Indicators.

Quality of the Environment Indicator: measured as the annual average concentration (micrograms per cubic meter) of particulate matter with less than ten microns in diameter (PM10) for urban areas. Data source: World Bank World Development Indicators.

Personal Security Indicator: measured as the number of intentional homicides (excluding deaths in armed conflicts) per 100,000 people. Data sources: World Health Organization and United Nations Office on Drugs and Crime.