Long-Term Economic Growth, Investment and Savings in Latin America and the Caribbean: Stylized Facts Since the 1960s

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During the postwar period, Latin America has been the laboratory for a series of experiments in the economic field that ranged from extremely neoliberal model implementation, going through mild economic policies, up to radical protectionist measures, very often accompanied by nationalistic discourse (Sueyoshi, 2006). However, Latin American countries present a series of stylized facts across countries and over time that transcends the limits of each economic paradigm and political doctrine.

A body of stylized facts may allow us to put forward tentative interpretations for the general economic performance of the region, and therefore to identify the most important sources for long-term economic growth. This is turn should become the basis for sustained and equitable growth, so indispensable in countries that are still fighting against poverty and inequality.

The main purpose of this paper is to focus on distinguishing the dynamics of per capita income, economic outcome trend and volatility, and investment and saving and its relationship with economic growth, in an attempt to provide the proper background against which to assess empirical analyses on long-term economic growth. Total factor productivity, convergence and fiscal variables have also been identified as important stylized facts in the region, and these dynamics will be analyzed in the near future.

Regional economic behavior: An overview

The annual average growth rates in Latin America had been below world average until 1990 (Loayza, 2002; De Gregorio, 2003). Only in the first half of the 1990s

the annual average growth rate was higher than the world average. According to our data[1] for the period 1960-2001, LAC[2] economies registered annual per capita growth rates of around 1.8 percent in average. However, the differences among periods and across countries have been quite different. Before the onset of the 1982 debt crisis the average rate was 3.1 percent.[3] If we consider a weighted average[4], this rate reaches almost 5 percent, due to Brazil's outstanding economic performance during the 1970s, when it registered annual growth rates within the 6 to 11 percent range for four consecutive years.

Figure 1
Latin America: GDP per capita growth (%) (1995=100)
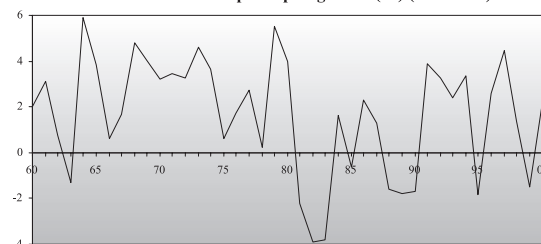
During the 1970s, when international real interest rates were low and capital was readily available, different governments in the region invested in projects with very high capital/output ratios, becoming the engine of the economy and pushing growth in most of the regional countries, except for Central America. In particular, some countries' economic performances

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[1] Basically the data comes from the International Monetary Fund, the World Bank (World Development Indicators) and the Inter-American Development Bank.

[2] i.e. Latin American and Caribbean countries.

[3] De Gregorio (1992) reports a growth rate of 2.9 percent for the period 70-85.

[4] Un-weighted average reveals what happened to the average Latin America nation and is more suitable for assessing cross-country growth.

have to be underlined. During the seventies, Chile and Bolivia had to tackle difficult economic and political instability that drove these countries to macroeconomic adjustment and structural reforms in the 1980s, much earlier than their neighboring countries. Brazil was the star, growing at 6 percent in average and reaching rates of more than 11 percent.

Figure 2
Latin America: Evolution of GDP per capita (In 1995 dollars)
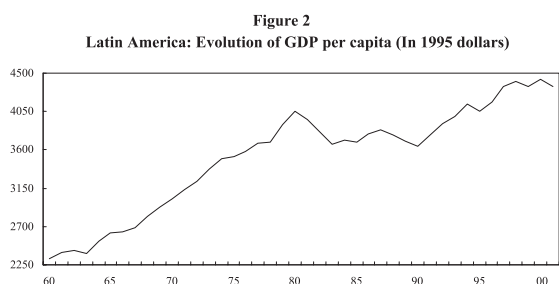
In the 1980s growing domestic macroeconomic imbalances that were triggered by the adverse world economic conditions resulted in a severe balance of payments crisis and produced sharp economic downturns in most LAC countries, as many researchers have demonstrated (Fanelli et al, 1992; Edwards, 1994 and 1995; Lustig, 1992, and Lora, 1997). The most dramatic was in 1982 (refer to Figure 1), where all countries with no exception registered negative growth rates, and then 1988-89 when the trials for new heterodox experiments failed, especially for Argentina, Brazil and Peru. In Figure 2 it is evident that only in 1992 LAC on average recovered the same income level as they had before the 1982 crisis started. The 1990s was the recovery period for almost all LAC economies, trying to get the nostalgic seventies' rates back, but with ups and downs, due to the Mexican, Asian, Brazilian and Argentinean crises, that clouded further recovery prospects for the region. Figure 1 depicts the interruption of growth during the second half of the nineties.

Economic growth: The performance

According to this brief account, it seems that the LAC economies have gone through four stages during the last three decades, as it is shown in Figure 1. The first one before the 1980s, the second corresponds to the so-called "lost decade", the third the recovery period driven by the revival of the purest market-oriented neoclassical theory from 1990 to 1997, and the fourth, the decline of economic growth from 1997, explained by internal and external causes, in other words by economic model exhaustion and external shocks.

Figure 3
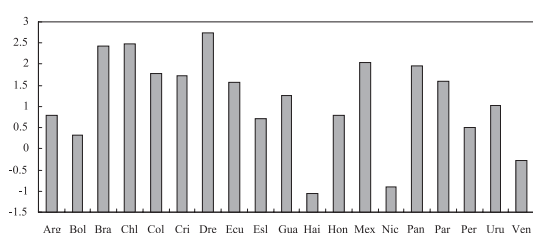US$ 1995 dollars   Latin America: Growth rate and GDP per capita   Yearly growth%
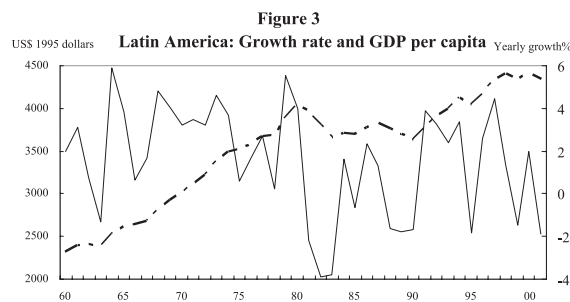
The common behavior for the entire region is based on the 1982 debt crisis that was a turning point for the majority of LAC countries. In Figure 3, the graph shows that before the eighties positive average growth rates can be observed. However, on a country by country basis, Latin American economies' performance can be characterized as very eclectic if we take a look at yearly growth rates, which fluctuate persistently throughout the period. After the 1982 crisis, that trend was emphasized by wider and sharper zigzag movements, mainly because of the economic behavior of the largest economies in the region, Argentina, Brazil and Mexico, in addition to Peru, Uruguay and Venezuela. Venezuela can be singled out from this group, because it shares with other countries an increase of volatility in growth rate after the 1980s (see Table 3), in spite of its advantageous sustained economic growth before the crisis, when the others had unpredictable growth rates. So far Venezuela has not been able to recover the income level it had before the 1982 debt crisis.[5]

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[5] For Chile and Bolivia, the 1980's crisis opened the path for economic recovery, but the story was very different for these two countries. Chile is considered the best performer in the region, while Bolivia is slowly getting better after a severe economic crisis in the seventies pushed the country down to the bottom of the ladder among Latin American countries. Colombia and Costa Rica reentered into their sustained economic path and grew steadily, and almost all Central American countries resumed their economic performance with no major change.

In the 1980s, the large majority of Latin American economies experienced negative growth rates or very closed to zero, and the only exceptions were Chile, Colombia and Dominican Republic (Table 3). Chile underwent important economic reforms that allowed it to reap its benefits rapidly, and Colombia, due to its macroeconomic stability and advantageous position on the debt crisis, was led to enjoy a very positive status within the region. By the end of the 1990s recovery, repeated international financial crises, deceleration of economic reforms and macroeconomic destabilization have hampered the region's growth pace. Economic downturns in a considerable number of countries have put a halt to expectations for Latin America.[6]

Income level dispersion

Pertaining to income levels in the region in Table 1 it can be observed that there is substantial dispersion among them. The highest-income-level country is Argentina (a little less than US $ 8,000 American dollars) and the lowest, Haiti with a little more than US $ 350. In decreasing order, the next ones are Uruguay, Chile, Brazil, Costa Rica, and Mexico in this order. All of them have income levels of around US $ 4,000 dollars, and a common feature is the relative sustainability of their income growth.

On the other hand as was mentioned before, Venezuela's income level has decreased in comparison to the rates before 1980s. This country and Panama are in the US $ 3,000 category. The range of countries with less than US $ 3,000 but more than US $

Figure 4
Latin America: Average annual GDP growth rate (60-01)

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[6] Argentina (Arg), Bolivia (Bol), Brazil (Bra), Chile (Chl), Colombia (Col), Costa Rica (Cri), Dominican Republic (Dre), Ecuador (Ecu), El Salvador (Els), Guatemala (Gua), Haiti (Hai), Honduras (Hon), Mexico (Mex), Nicaragua (Nic), Panama (Pan), Paraguay (Par), Peru (Per), Uruguay (Uru) and Venezuela (Ven).

Table 1
Latin America: Income and population statistics (1960-2001)

	GDP growth	GDP per capita (US$)			Population (millions)	Urban population (% of total)	Surface (% of total)
		60-01	1960	2001			
Argentina	0.9	6892	5418	7869	37.5	88.3	13.3
Bolivia	0.4	919	830	944	8.5	62.9	5.2
Brazil	2.5	3511	1742	4634	172.4	81.7	40.8
Chile	2.6	3027	1968	5386	15.4	86.0	3.6
Colombia	1.8	1795	1104	2277	43.0	75.5	5.4
Costa Rica	1.8	2824	1939	3900	3.9	59.5	0.2
D. Republic	2.9	1256	683	2077	8.5	66.0	0.2
Ecuador	1.7	1291	777	1478	12.9	63.4	1.4
El Salvador	0.8	1576	1310	1757	6.4	61.3	0.1
Guatemala	1.3	1340	928	1554	11.7	40.0	0.5
Haiti	-1.0	483	547	354	8.1	36.3	0.1
Honduras	0.8	657	513	711	6.6	53.6	0.5
Mexico	2.1	2850	1639	3739	99.4	74.6	9.3
Nicaragua	-0.7	693	636	437	5.2	56.5	0.6
Panama	2.1	2598	1463	3243	2.9	58.6	0.4
Paraguay	1.7	1498	890	1703	5.4	56.6	1.9
Peru	0.6	2312	1875	2311	26.3	73.1	6.1
Uruguay	1.1	4710	3873	5870	3.4	92.1	0.8
Venezuela	-0.2	3822	3721	3326	24.6	87.2	4.3
LAC avg.	1.8	2319	1677	2798	26.4	66.9	5.0

2,000 American dollars of income level starts with Colombia, Peru and Dominican Republic. Paraguay, El Salvador, Ecuador and Guatemala belong to the group between US $ 2,000 and 1,000 dollars; and the rest of Central American and Caribbean countries of the sample, Honduras, Nicaragua and Haiti have less than US $ 1,000 dollars of per capita annual income.

For the period 1960-2001, in terms of economic performance at country level, Dominican Republic, Chile and Brazil show an outstanding income level growth. These countries have improved by far their GDP per capita since 1960 (Figure 4). On the contrary, Haiti, Nicaragua, Venezuela and Bolivia still could not reach their 1960 income levels; and the remaining economies have maintained growth at a moderate pace, improving its initial conditions only by 50 percent at the most.

Trend and volatility

If we take a look at regional trend growth by analyzing the median growth rate of GDP per capita in

Table 3, we will observe an average for the region of 1.8 percent spanning the period 1960-2001. This trend has been declining since 1960 with some recovery by the second half of the 1990s that was offset by the slowdown occurred by the end of the decade. For some countries the recovery in the nineties was striking.

The economic performances of Argentina, Bolivia, Chile, Costa Rica, Dominican Republic, El Salvador and Uruguay show greater average trends than the previous decades' average. For other countries like Guatemala, Mexico, Panama, Peru and Venezuela there was a relatively substantial improvement in terms of positive trends in comparison to the eighties but without reaching the sixties or seventies averages. This almost general and significant improvement in the region, mainly has its origins in the initialization for some economies-Argentina, Dominican Republic, Ecuador, El Salvador and Peru- and continuation for other countries-Chile and Mexico-structural reforms and stabilization programs in the nineties.

Table 2
Latin America: Main macroeconomic indicators (1960-2001)

	GDP growth	1960 GDP (US$)	Savings/ GDP	Investment/ GDP	FDI/ GDP *	Gov. expenditures/ GDP	Open- ness **	Yearly inflation
Argentina	0.9	5418	22.0	21.2	1.3	9.7	15.4	236.9
Bolivia	0.4	830	17.2	16.1	2.6	11.2	54.9	345.2
Brazil	2.5	1742	21.0	21.1	1.4	13.2	16.8	554.2
Chile	2.6	1968	20.0	19.9	2.6	11.9	45.1	56.7
Colombia	1.8	1104	19.0	19.2	1.4	10.7	30.3	19.0
Costa Rica	1.8	1939	17.1	21.7	2.4	14.1	69.9	14.1
D. Republic	2.9	683	20.0	14.2	2.2	20.4	54.0	11.9
Ecuador	1.7	777	20.0	20.0	2.4	11.0	48.6	24.9
El Salvador	0.8	1310	9.3	15.9	0.8	11.1	56.3	9.6
Guatemala	1.3	928	10.7	14.4	1.3	7.0	39.1	9.2
Haiti	-1.0	547	5.5	14.6	0.5	8.9	38.5	10.4
Honduras	0.8	513	16.8	22.0	1.3	11.7	67.8	9.2
Mexico	2.1	1639	21.2	21.7	1.5	9.0	30.2	26.3
Nicaragua	-0.7	636	7.3	20.4	1.4	17.1	65.2	1021.9
Panama	2.1	1463	24.0	23.0	2.6	16.9	75.3	2.8
Paraguay	1.7	890	15.0	23.4	1.1	7.2	47.1	12.9
Peru	0.6	1875	23.3	25.2	1.2	10.3	34.6	323.2
Uruguay	1.1	3873	17.0	16.6	0.7	13.1	35.6	51.9
Venezuela	-0.2	3721	30.3	24.2	1.0	10.1	46.1	19.7
LAC avg.	1.8	3521	21.4	21.1	1.4	10.8	27.9	209.9

* Net flows. ** Import plus exports over GDP.

'Things were better even in the bad old days.' Apparently, in Latin America it is true that the good old days were really better. If we divide the period of the analysis into two halves, for every country in the region, the first half from 1960-1970s presents a better economic performance trend in comparison to the second from 1980-1990s. Chile is the unique case with a remarkable economic average trend (1.4 percent) in the 1980s and 1990s that surpasses by far-more than double-the average in the 1960s and 1970s (3.7 percent).

Table 3
Latin America: Growth rate trend and volatility

	1960s	1970s	1980s	1990s	1960-70s	1980-90s	1960-2001
Argentina	2.6	1.3	-2.2	3.2	1.9	0.1	0.9
	(5.5)	(4.3)	(5.5)	(5.7)	(4.8)	(6.0)	(5.5)
Bolivia	0.9	1.7	-2.4	1.6	1.3	-0.4	0.4
	(5.9)	(2.5)	(2.7)	(1.6)	(4.3)	(2.8)	(3.7)
Brazil	3.0	5.9	0.9	0.4	4.5	0.7	2.5
	(3.7)	(3.4)	(4.7)	(3.0)	(3.7)	(3.7)	(4.1)
Chile	2.0	0.8	2.7	4.9	1.4	3.7	2.6
	(2.6)	(6.6)	(6.3)	(3.6)	(5.0)	(4.9)	(5.0)
Colombia	2.0	3.3	1.3	0.9	2.7	1.0	1.8
	(1.5)	(1.7)	(1.6)	(2.8)	(1.7)	(2.1)	(2.1)
Costa Rica	1.8	3.4	-0.7	3.0	2.6	1.0	1.8
	(3.1)	(1.9)	(4.4)	(2.8)	(2.6)	(3.9)	(3.4)
D. Republic	1.6	5.4	1.5	2.8	3.6	2.3	2.9
	(8.7)	(4.6)	(2.9)	(4.3)	(6.9)	(3.5)	(5.3)
Ecuador	1.0	6.1	-0.3	-0.3	3.7	0.0	1.7
	(2.0)	(5.8)	(4.4)	(3.3)	(5.1)	(3.7)	(4.7)
El Salvador	2.5	1.2	-3.0	2.8	1.8	-0.1	0.8
	(3.0)	(2.9)	(5.5)	(1.8)	(3.0)	(4.7)	(4.0)
Guatemala	2.6	3.1	-1.5	1.4	2.8	0.0	1.3
	(2.1)	(1.7)	(2.7)	(0.7)	(1.9)	(2.3)	(2.6)
Haiti	-1.3	1.8	-1.5	-2.6	0.3	-2.1	-1.0
	(4.3)	(3.9)	(2.9)	(5.7)	(4.3)	(4.2)	(4.4)
Honduras	1.6	2.5	-0.7	-0.1	2.1	-0.2	0.8
	(2.5)	(3.7)	(2.6)	(2.7)	(3.1)	(2.5)	(3.0)
Mexico	3.5	3.3	0.1	1.7	3.4	1.0	2.1
	(2.6)	(2.2)	(4.3)	(3.6)	(2.3)	(3.9)	(3.5)
Nicaragua	4.1	-2.5	-3.5	-0.4	0.6	-1.8	-0.7
	(3.6)	(10.8)	(4.8)	(2.2)	(8.6)	(3.8)	(6.5)
Panama	5.0	2.0	-1.2	3.2	3.4	0.9	2.1
	(1.7)	(3.0)	(6.1)	(2.5)	(2.9)	(4.9)	(4.2)
Paraguay	1.8	5.0	0.9	-0.4	3.5	0.1	1.7
	(2.4)	(2.0)	(5.3)	(1.6)	(2.7)	(3.7)	(3.7)
Peru	2.3	1.1	-1.9	1.3	1.7	-0.3	0.6
	(2.6)	(2.7)	(8.0)	(5.0)	(2.6)	(6.4)	(5.1)
Uruguay	0.2	2.3	0.1	2.5	1.3	0.9	1.1
	(2.8)	(2.6)	(6.5)	(3.6)	(2.8)	(5.2)	(4.2)
Venezuela	1.2	0.4	-2.7	0.2	0.8	-1.1	-0.2
	(3.3)	(2.7)	(4.8)	(4.6)	(3.0)	(4.6)	(4.0)
LAC avg.	2.8	3.9	-0.2	1.5	3.1	0.7	1.8
	(1.8)	(1.4)	(2.6)	(2.0)	(1.5)	(2.4)	(2.3)

*Standard deviation in parentheses.

The economic behavior in terms of cyclical fluctuations is analyzed by measuring the standard deviation of the average output growth rate. For the region the standard deviation of the GDP per capita growth throughout the period 1960-2001 is 2.3. Colombia (2.1) is the only country that had kept less volatility than the LAC average during the same period. If we compared the region's average volatility of the two first decades (1960s and 1970s) with the average for the last two (1980s and 1990s) we can observe a decrease in the latter. Another empirical regularity that can be obtained from Table 3 is the declining volatility in the 1970s across countries, then an increase in the 1980s, and a decrease in the 1990s.

In the region the countries with more volatility in GDP per capita rate are Nicaragua (6.5), Argentina (5.5), Dominican Republic (5.3) and Peru (5.0). On the contrary, the economies with less volatility are Colombia (2.1), Guatemala (2.6), Honduras (3.0), Costa Rica (3.4), and Bolivia (3.7). Argentina deserves to be singled out because unfortunately this country has maintained very high volatility levels above 5.0 throughout the period and for every decade.

Despite the output rate volatility is still high in the LAC region. Some countries which had registered extremely high volatile GDP rates in the past have not shown those rates anymore, and this is a regional improvement in terms of economic stability. For instance, Bolivia in the 1960s had a volatility of 8.7, Nicaragua in the 1970s, of 10.8, and finally Peru in the 1980s of 8.0. On the other hand, Colombia, Guatemala and Honduras were able to sustain comparatively low volatile output rates. Colombia's volatility moved around 2.0, Guatemala almost the same, and Honduras, 3.0.

Savings and Investment

In endogenous growth models there is a clear relationship between the level of investment rate and the level of per capita income, contrary to what the neoclassical models state, that long-run growth is likely to be independent of the investment rate, due to diminishing returns to accumulative factors.

The minimalist AK model offers an explanation to this close relationship. The AK, one of the simplest models that allow endogenous analysis is derived from the neoclassical model developed by Solow, and assumes that there is no exogenous technological effect. Therefore $\alpha = 1$.

$$Y = AK, \text{ where } A>0. \qquad (1)$$

Also from the neoclassical model:

$$K = sY - dK \qquad (2)$$

Where s is the investment rate and d is the depreciation rate, both are assumed to be constant. For further simplification we will assume that there is no population growth and we will consider for the time being that the economy is populated by just one person.

According to the former equation, in this economy investment (sY) is larger than depreciation, then capital stock grows overtime. This perpetual growth is because $\alpha = 1$, and not less than 1, as it was in the neoclassical theory, due to diminishing returns to scale, when every marginal unit was less productive than the previous one. This means that eventually investment could decrease until depreciation level, not allowing for further capital accumulation.

$$\frac{\dot{K}}{K} = s\frac{Y}{Y} - d \qquad (3)$$

$$\frac{\dot{K}}{K} = sA - d \qquad \text{, by replacing } Y/K = A \qquad (4)$$

If we take logs and derivatives of the production function, it can be seen that output growth rate is equal to the capital growth rate:

$$g = \frac{\dot{Y}}{Y} = sA - d$$

(5)

On the other hand, empirical studies have demonstrated that growth differential across countries are explained by capital accumulation differences. Romer (1994) even suggests that there is a steady linear relation between investment rate and growth rate, drawing on the arguments of learning by doing and knowledge spillovers, which prevent decreasing marginal returns to capital.

According to Grossman and Helpman (1994), spillover effects also occur in the course of investment in physical or human capital. It is said that when economic agents invest, they also contribute to the productivity of capital held by others. In that way, the private marginal product of that factor can permanently be above the discount rate, even if the individual investment face diminishing returns of capital in the absence of external boosts of productivity, and growth can be sustained by the continuing accumulation of those inputs that generate positive externalities.

Besides, some recent works emphasize the role of FDI on economic growth as a vehicle of technology transfer, especially in developing countries, contributing more to growth than domestic investment (Cuadros et al, 2002; and De Gregorio and Lee, 1999).

The relationship between investment and long-term economic growth is connected to problems of endogeneity, which could be corrected by using successive lags of the investment variable as we will see later on. Likewise, it is important to emphasize that endogeneity problems are related to different types of investment. For example, the returns to foreign direct investment are often found to be extremely high, foreign investment is attracted by countries which are doing very well or do have good prospects for doing very well.

These two variables in economic growth, their interconnection[7] and relationship with other indicators, constitutes one of the most salient nexus in an economy. In Figure 5 it can be observed that the almost perfect matching between aggregate savings and investment, when most of Latin America was under Import Substitution Industrialization (ISI) regimes and under the imposition of restrictive measures against either inflows or outflows of capital.

This trend had an end in the 1982 financial crisis that caused an abrupt decrease in investment. So far the region has not yet recovered its investment rates previous to the debt crisis, when it had a substantial component of government investment. In the last two decades and especially in the last one, Latin America has been opened to external markets and the differences between domestic investment and savings has become more significant, which means that nowadays foreign capital inflows may play an important role in investment and therefore growth. In cross country and time series panel data, savings and economic growth have a correlation of 0.4, while savings and investment of 0.5.

Figure 5
Latin America: Investment and savings (% of GDP)
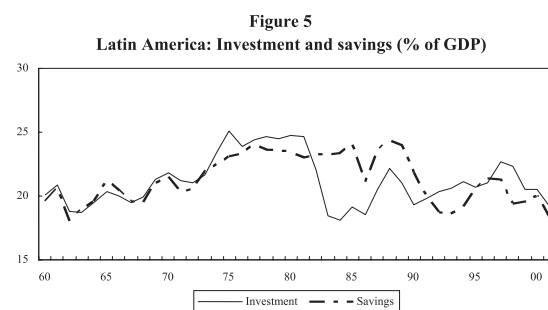
As Edwards (1995, 1996) and Loayza et al. (1999) have concluded, aggregate savings are not completely exogenous and they respond to both economic and

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[7] In a context of international capital mobility, all domestic savings cannot be translated into investment, and investment, in turn, can have other sources from abroad. Despite this theoretical digression, empirically there is abundant evidence suggesting that domestic savings are highly correlated to aggregate investment, furthermore, indicating that, on average and over long periods of time, changes in capital accumulation respond mostly to changes in domestic savings (Edwards, 1995, 1996).

Table 4
Dependent variable: real per capita GDP growth rate

		OLS	Fixed effects
Investment	T	7.08	2.14
		(2.48)	(5.35)
	t-1	-9.16	-2.03
		(-2.68)	(7.21)
	t-2	3.47	0.68
		(2.48)	(3.85)
Savings	T	2.10	2.59
		(4.62)	(7.21)
	t-1	-11.64	-3.16
		(-3.75)	(-3.70)
	t-2	4.90	1.36
		(3.61)	(2.61)
Fiscal balance	T	4.89	1.94
		(0.89)	(2.57)
	t-1	-7.12	-5.31
		(-1.26)	(-3.74)
	t-2	2.98	2.27
		(1.62)	(3.10)

political determinants,[8] as well as investment.[9] Macroeconomic stability through inflation has also a negative impact on it, as well as growth. [10]

One important aspect to be considered in the empirical specification is that any effect from contemporaneous investment on growth may reflect reverse-causation. This means high growth can cause high saving and therefore high investment, mainly

[8] According to life-cycles models, these are affected by demographic variables, such as proportion of urban population and age dependency ratio.

[9] Theoretically in a very traditional neoclassical view, savings are dampened by an increase of interest rate. However, when it comes to empirical grounds only a weak interest rate elasticity of aggregate savings is found (Edwards, 1995; Loayza et al., 1999). Among the possible explanations for this phenomenon is the underlying relationship between interest rate and portfolio readjustments rather than saving decisions. The same applies for Latin America, where there is no empirical evidence of a strong relationship between interest rate and savings. Instead of having a net-positive economic impact, a rise in interest rate will result in a decrease of public sector saving due to the existence of significant amount of public debt, both domestic and external, and that decrease offsets any increase, if there is any, in savings. Since low saving rates have been pointed out as one of the most serious constraints faced by these countries, finding the variables behind an increase of savings becomes an area for major and urgent research in the economics of this region.

[10] This is what the World Bank (1997) has called the 'virtuous circle', which means higher growth will cause higher savings and this, in turn, higher growth, closing a perfect circle.

due to measuring problems. Investment is calculated as the average ratio of investment to GDP over the same period in which growth is also calculated. This problem can be solved by using lagged values of investment rate as instruments for growth level.

Figure 6
Latin America: Growth and investment (%)
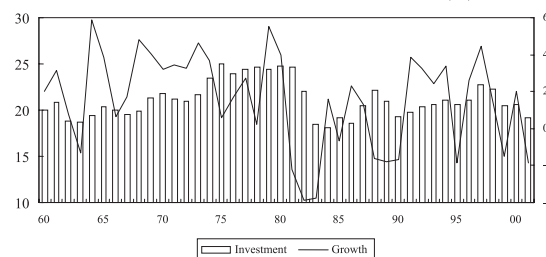
The estimates for the relationship between investment and growth for the total panel data show that growth is basically affected by investment and not the reverse. This is explained by considering two lags for both variables and run regressions both ways, growth on investment and investment on growth, considering the simplest ordinary least square (OLS) and fixed effects in panel data, which considers country-specific-effects.

The results, presented in Table 4, show very significant coefficients with relevant t-statistics for the regressions where growth is the dependent variable, while investment and its two lags periods are the explanatory variables. When the regression is executed the other way, it means investment as independent variable the results show very weak coefficients (less than 0.01). The same applies for savings and fiscal balance. However their coefficients are not significant. Another aspect that draws our attention is the sign of the coefficients, when the first lag is the independent variable.[11]

Figure 7
Latin America: Investment and FDI (% of GDP)
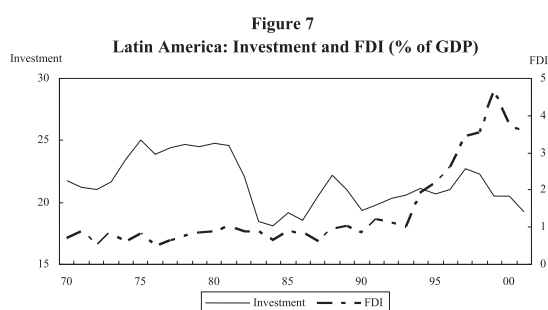
Foreign direct investment, FDI hereinafter, has been quoted in the economic literature as an important growth determinant (Cuadros et. al, 2002; and Levine and Renelt, 1992). In Latin America due to its traditional inward looking policies in the sixties and seventies, FDI had played a minor role in capital accumulation process (Figure 7). Until late 1980s, FDI amounted on average less than one percent of GDP per year, and it is not after 1993 that soared sharply until it reached its highest point of 5 percent in 1999. [12]

Conclusions

This is the list of stylized facts that can be drawn regarding trends and volatility, and investment and savings impact on long-term economic growth.

Stylized fact 1: The average growth rate for the region is 1.8 percent spanning the period 1960-2001. This trend has declined since 1960 with some recovery by the second half of the 1990s. For some countries the recovery in the nineties was striking.

Stylized fact 2: 'Things were better even in the bad old days.' The first half from 1960-1970s presents a better economic performance trend in comparison to the second from 1980-1990s. Chile is the unique case with a remarkable economic average trend in the 1980s and 1990s.

Stylized fact 3: For the region the standard deviation of the GDP per capita growth throughout the period 1960-2001 is 2.3. Volatility declined in the 1970s across countries, then increased in the 1980s, and decreased in the 1990s. Colombia is the only country that had kept less volatility than the LAC average during the same period. On the other hand, Argentina has maintained very high volatility levels throughout the period and for every decade.

Stylized fact 4: In Latin America good economic performance is related to less volatility.

Stylized fact 5: Investment is one of the 'classical' determinants of economic growth but foreign direct investment appears to have a more significant effect than the aggregate investment.

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[11]Loayza et al. (2002) give an explanation of this phenomenon based on cyclical nature of growth.

[12]Macroeconomic stabilization, structural reforms, in particular privatization, contributed to this sudden increase. In the context of endogenous growth models, where increases in productivity impact long-term growth through spillover effects, especially for LAC economies, FDI plays also a fundamental role as technology transfer vehicle, allowing the receptor country to be in touch with new techniques and managerial practices.

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Crecimiento Económico de Largo Plazo, Inversión y Ahorros en América Latina: Hechos estilizados desde la década de los sesenta

Ana Sueyoshi

A pesar de los cambios radicales en los modelos de política económica adoptados durante el período de posguerra en los diferentes países de América Latina, la región presenta un conjunto de "hechos estilizados" que han trascendido tanto el discurso político como el paradigma económico de turno. La identificación de los más importantes hechos estilizados hará posible bosquejar una tentativa interpretación del comportamiento general de la región, y por ende reconocer los más importantes determinantes de crecimiento económico de largo plazo.

La dinámica del ingreso per cápita, la tendencia y volatilidad del producto, así como la relevancia de las variables inversión-ahorro en la determinación del crecimiento de largo plazo serán exploradas y analizadas a través del empleo de estadística descriptiva y técnicas básicas de regresión.

Uno de los resultados más importantes arrojados en esta investigación confirma empíricamente la estrecha y clásica relación entre inversión y producto, no sólo en términos de niveles, sino también de crecimiento de dichas variables en el largo plazo, argumento cuestionado por la teoría neoclásica si se toma en cuenta los rendimientos decrecientes del capital en el largo plazo.