

Growth Determinants in Latin America and East Asia: has globalization changed the engines of growth?

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Abstract

The answer that emerges to the question: Has globalization changed the engines of growth,? from a comparative analysis between Latin America and East Asia , in spite of the extraordinary opportunities brought upon by this process, is a qualified no: investment, followed by industrial growth and savings, the traditional engines of growth, still have the most robust influence, far stronger than the variables epitomizing globalization, exports and capital flows (including FDI). In East Asia exports and capital flows are not as important as investment, industrial growth and savings. In Latin America exports and capital flows seem to have a somewhat stronger influence. In the same direction, a dynamic analysis shows that the Increasing Returns Dynamics involving the virtuous cycle Investment→productivity growth→exports competitiveness→growth→Investment continue to rule the growth process under globalization.

Resumen

La respuesta que emerge de un análisis comparativo entre América Latina y Asia del Este a la pregunta de si la globalización ha cambiado los motores del crecimiento es, a pesar de las extraordinarias posibilidades de desarrollo abiertas por este proceso, un no cualificado: la inversión, seguida del crecimiento industrial y del ahorro, los motores tradicionales del crecimiento, continúan teniendo la influencia más robusta, de lejos más fuerte que las variables constitutivas de la globalización, las exportaciones y los flujos de capital (incluida la IED). La influencia de estas últimas parece ser menos débil en Latinoamérica, y, en términos del superior desempeño económico del Este Asiático, esta región no muestra para ellas (exportaciones y flujos de capital) la clase de superioridad que muestra para dichos motores (inversión, crecimiento industrial y ahorro). La Dinámica de Rendimientos Crecientes que involucra el ciclo virtuoso Inversión→crecimiento de la productividad→competitividad exportadora→crecimiento→Inversión continua rigiendo el proceso de crecimiento en presencia de la globalización.

Keywords: Economic Growth, Investment, Savings, Exports, Industrial Policy, East Asia, Latin America

Palabras clave: Crecimiento económico, Inversión, Ahorros, Exportaciones, Política industrial, Asia Oriental, América Latina

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The combination of exploding commercial and financial flows, and momentous organizational, financial and technological innovations, leading the globalization process, have unleashed a wave of optimism about the possibilities for growth and development brought upon by the so called, "new era of capitalist development". This optimism seems to provide support to the idea that the current phase of globalization is changing the dynamics of economic growth in the direction foreseen by the Washington Consensus: deregulation will bring about integration into the global economy and this integration will bring about growth and development. The extraordinary opportunities for development brought upon by globalization have led to the idea that this process has changed the engines of growth. But has globalization really shifted the mechanisms of growth in such a direction?

Globalization is indeed changing the mechanisms of development in that the jobless pattern of growth emerging from globalization results from

the severing of the links between exports, productive structures and employment, a characteristic feature of growth under globalization: growth is taking place without the corresponding advances in employment and poverty alleviation, which are fundamental ingredients for development.¹ Thus, the question is whether this process, has really meant that exports and capital flows have superseded investment as engine of growth.

This issue will be tackled in three sections: i) an introduction to the analytical and empirical dimensions of the problem at hand; ii) a summary of the structure and main results of the analysis; and iii) the results of a variety of econometric estimations.

All throughout the paper a dynamic increasing return (DIR)² interpretation of the growth process under globalization will be presented, drawing not only on econometric results, but also on analytical and historical evidence. Thus, the paper provides support for an interpretation of the growth process

¹ See Chica (2007a p. ii, 3), Chica (2009 p. 23), ECLAC (2002 p. 308). Lall (2002c p. 14).

² This refers to a system governed by circular cumulative causation dynamics. Its core variables interact in such multiple causality manner that their expansion or contraction reinforce each other in a circular and cyclical fashion. Although the concept was introduced by Myrdal and Rosenstein Rodan, "particularly important in terms of growth dynamics is the Kaldorian virtuous circle investment-productivity growth-exports-growth-investment ($I-\Delta\beta-X-g-I$) which summarizes various mechanisms that explain the DIR which characterize those dynamics... The initial stage... from I to g, (from which the whole development process stems) is comprised in this virtuous circle as capital accumulation generates growth via productivity acceleration and competitiveness strengthening. This type of virtuous cumulative dynamics stands in sharp contrast with vicious ones in which the interaction among stagnant levels of investment, productivity growth, and so on, retains an economy in a poverty trap" (Chica, 2011a p. 5-6). See among others: Chica (2007a), Dosi et al. (1998), Kaldor (1985), Roberts & McCombie (2008), Setterfield (1997, 1998, 2001), Targetti (2005) and Toner (2001).

of successful globalizers, which spread from East Asia to Costa Rica and Chile, following Kaldor's cumulative causation dynamics involving virtuous circles in the sequence investment-productivity growth-exports' competitiveness strengthening-growth-investment ($I \rightarrow \Delta\beta \rightarrow \Delta\delta X \rightarrow g \rightarrow I$) and so on. In this direction, an analysis of growth determinants benefits from a comparative perspective of East Asia and Latin America, as the developing countries that have managed to more actively integrate into global flows, and to profit from this integration, concentrate in East Asia.

The analysis will thus proceed by contrasting the performance and growth dynamics of these successful globalizers against those of the Latin American economies, which enjoyed similar levels of development in the early seventies, at the end of the previous phase of globalization and increasingly lagged behind despite the fact that they reformed and deregulated more radically during the eighties and the nineties.

Given the variety of econometric problems besetting the growth regressions (see section I.B.1 on the growth regressions debate) it is important to stress that the argument that follows is not exclusively econometric in nature. We took into consideration stylized facts on the economic performance of the two regions when interpreting econometric results; and the other way around, those facts bolstered the interpretations emerging from these results. Therefore, these inter-

pretations do not stand in isolation of economic performance and the analytical framework of dynamic increasing returns just introduced, but they combine with stylized facts in the light of this framework.

In this way, the answer to the question Has globalization changed the engines of growth? Is a qualified no. On one hand, investment followed by industrial growth and savings, the traditional engines of growth, still have the most robust influence, far stronger than the variables epitomizing globalization i.e. exports and capital flows, which include foreign direct investment and portfolio flows. On the other hand the influence of the latter variables still plays a role, albeit in general weaker, which in the case of exports seems to be more important in Latin America.

Indeed it is very interesting that in Asia, investment, industrial growth and savings are far more important as engines of growth than other variables. In other words, according to the econometric analysis the influence of the variables for which East Asia is not a superior performer, as is the case of exports and capital flows, is ambiguous due to lack of robustness.

I. Introduction

This introduction considers the strands of the literature on growth on which this paper draws. Section I.A. focuses on the analytical side, specifically

on the main traditions of growth determinants; and I.B. on the empirical side, namely the growth regressions debate and a comparative perspective on East Asia's superior performance vis-à-vis Latin America.³

A. Growth dynamics

The approach of this paper draws elements from various traditions of thought on economic growth. Besides the Classical, Neoclassical and Post-Keynesian focus on capital accumulation, and the Classical, Evolutionist and Endogenous Growth Theories' emphasis on technological innovation, it follows the Classical, Post-Keynesian and Endogenous Growth Theories that privilege increasing returns.⁴

1. Increasing returns

The role of capital and capacities accumulation cum technological innovation is related to the way these factors sustain growth through increases in labor productivity, obtained from mechanisms that bring about non-decreasing returns to capital. The concept of increasing returns refers to three types of

mechanisms: internal economies; externalities and interactions; and cumulative causation. The latter includes virtuous circles in capacities accumulation; coordination economies due to economies of scale (supply) and market size (demand) interactions; and Kaldorian cumulative causation in the Kaldorian virtuous circle investment to productivity growth to export's competitiveness strengthening to growth and to investment ($I - \Delta\beta - \Delta\delta X - g - I$).

This paper will focus on Kaldor's cumulative causation synthesis, involving various mechanisms: the Arrow-like link between capital accumulation and technological innovation (in his Technical Progress Function); coordination economies both of the demand-supply type and of the division of labor type; and a positive relationship productivity-level of output (Verdoorn Law), which, along with an accelerator investment function and the introduction of the Harrod's multiplier (demand) and Thirlwall's imports capacity effects of exports (supply), give rise to the said Kaldorian virtuous circle.⁵

The factors considered by the three schools of thought and these mechanisms highlighted by

³ Both sections are just introductory in character. The ideas summarized in I.A. are presented in Chica (2007c, 2011a). The analysis summarized in I.B. is presented in Chica (2009, 2011b).

⁴ Summaries of these schools' thought are found in: Aghion & Howitt (1999), Dosi et al. (1998), Sen (1974), Sweezy (1974). A schematic introduction is found in Chica (1996 p. 224-237) and Chica (2007b p. 335-339).

⁵ See Kaldor (1961a, 1961b, 1985, 1989). Schematic introductions are found in Chica (1996 p. 225-226) and Chica (2007a p. 49, 133).

Kaldor concentrate on manufacturing industry. The fact that many of the most important dynamic increasing returns mechanisms (externalities, network economies, technological learning and spillovers, circularities accumulation of technological capacities- diffusion & absorption) concentrate in the industrial sector explains why structural change from primary to industrial production is essential for growth and development⁶ (Cimoli, Dosi & Stiglitz, 2009).

2. *Kaldorian cumulative causation and growth regressions*

The adoption of a Kaldorian cum endogenous growth framework has an additional advantage. The circle $I-\Delta\beta-\Delta\delta X-g-I$ involves the main results of the growth regression debate, namely the robust influence of investment and exports and also the

endogeneity of these variables with respect to economic growth.

In a Kaldorian perspective the discussion about whether investment or exports are the most important growth determinant falls short of the mark in that it overlooks the strategic complementarities between the two variables. These complementarities can be seen by considering the role of investment and exports as engines of growth. On the supply side, investment works through productivity growth via capital intensification and technical change, while exports work via learning from competing and interacting in external markets with high standards in terms both of quality and prices, along with an additional imports capacity effect as growth is foreign exchange constrained. On the demand side, investment and exports have a multiplier effect on economic activity, which in

⁶ That industrial growth works as an engine of growth has been emphasized by the analyses of patterns (Kuznets, Chenery) and engines of growth (Smith-Young-Kaldor) and the capacities approach to technological innovation (Lall, Katz). Recently various authors (Cimoli, Dosi & Stiglitz, 2009) have emphasized the advantages of specializing in technologically dynamic industrial activities (the argument is presented in a nutshell in (Chica, 2010). Besides stressing these advantages, Hausmann, Hwang & Rodrik, (2007) and Hausmann et al., (2011) have emphasized the importance of a transition towards a dynamic and complementary services sector, facilitated by specializing in industrial dynamic sectors as opposed to agriculture. Does this mean that the tertiary sector has superseded manufacturing as the engine of growth? Indeed, services development enjoys some IR elements including network economies involved in ICT absorption, which open the way for enormous productivity and value added increases, as in software and content, supporting the interface with a global audience on line (Chica, 2012) and to this extent absorbs labor into higher productivity activities. It so becomes the locus of employment generation at the same time that crucially complements industrial growth, since services' productivity plays a central role in the competitiveness of manufacturing (Hausmann, 2002), as successful Singapore, a central hub in Asian logistics and finances shows. However, even in Singapore or Germany services have not replaced manufacturing industry as the engine of growth. In this direction it can be illuminating to contrast two forms of tertiarization: dynamic-complementary to industrialization vs. stagnant-concomitant with de-industrialization. The former exemplified by Germany and Singapore and the latter the UK and Colombia. For a discussion of this distinction and its implications for development policy see Chica (2007a p. 152-153) and Chica (2007b p. 59-60); for the role of the ICT in facilitating the complementarity services-industry and the need of a selective industrial policy (IP) see Chica (2007b p. 349-351); for a comparison Latin America vs. East Asia in this direction see ECLAC (2007) and Chica (2009).

turn increases productivity via static increasing returns in the short run (decreasing costs with higher capacity utilization) and Verdoorn-Young-Kaldor effects in the long run.

This paper draws on a dynamic increasing returns interpretation of the main 20th century economic miracles: Germany, Japan and East Asia. In this strand of literature, Kaldor pointed to the differences in the investment rate that translated into gaps in productivity growth and exports competitiveness as an explanation for the gulf in performance between the UK, Germany and Japan. He extended this view to the dynamic increasing return or cumulative causation process, involving virtuous circles in the sequence $I-\Delta\beta-\Delta\delta X-g-I$. There is ample evidence about the operation of this sequence in a virtuous circle fashion, not only in the cases of Germany and Japan, but also in East Asia (Chica, 2007a).

The following section focuses on the empirical evidence from the East Asian Miracle and on an econometric confirmation of the growth regressions debate.

B. Empirical evidence: growth regressions and the East Asian Miracle

1. *The growth regressions debate*

The growth regressions debate involves the use of econometric methods to answer the question: what

are the factors, or engines, which influence the most the pace of economic growth. These variables are typically investment and exports, along with other like indexes of macroeconomic stability and institutional development.

Multiple econometric papers suggest that investment and to a lesser extent exports are the variables that show the most robust explanatory power for growth rates. In this direction, the contribution of this paper lies on evaluating the influence of investment interpreted in a Kaldorian cumulative causation fashion, which points to the fact that the evolution of these engines is in turn determined endogenously by growth itself. The results of the growth regressions debate thus confirm Kaldor's observations in two directions. First, investment and exports are the two most important explanatory variables. Second, both variables are endogenous.

These two findings and their meaning have been subject to intense debate. Critics (Rodrik, 2005) mentions problems like outliers, omitted variables, model uncertainty, measurement error and endogeneity, to argue that we learn nothing from regressing economic growth on policies. They claim that outcome variables like investment and trade ratios may be caused by or be jointly determined with incomes. They also claim that it is hard to find credible instrumental variables which satisfy the exogeneity and exclusion requirements.

Policy endogeneity is not just an econometric nuisance. Treating policy as if it were exogenous is problematic also from a conceptual point of view. Endogeneity of regressors affect critical variables like causality running from growth to investment and the use of instruments affects the coefficients of the investment ratio and those variables correlated with investment and growth like human capital.⁷

On the other side of the debate, some authors⁸ recognize the problems besetting the methodology, but emphasize the significance of the results. Levine & Renelt, (1991) show the contrast between the fragile relationship between many policy indicators and human capital and growth, and the robustness of the correlation of growth and investment's share in GDP as well as the correlation of the trade ratio with this share. Bosworth & Collins, (2003) argue that the critique has gone too far. They find that the variability of the results can be explained by variation in the sample, the time period, and the additional explanatory variables included in the regression. Besides, there is a core set of explanatory variables that has been shown

to be consistently related to economic growth.⁹ Finally, Collier & Goderis, (2007), in an interesting recent application of the methodology, extend it to the analysis of the Natural Resource Curse whereby panel cointegration is deployed in order to evaluate the long run effects of commodity prices on growth. They find strong evidence of a resource curse: commodity booms have positive short-term effects on output, but adverse long-term effects.

2. The East Asian Miracle: lessons and contrast

Looking at the contrast between East Asia's successful globalizers and Latin America gives clues as to engines of growth and the mechanisms of development. Two aspects are worth considering: 1) the ingredients of East Asia's success and their impact in terms of economic performance; 2) East Asia's superior economic performance.

1) The ingredients of East Asia's success and their impact on performance

Four ingredients can be observed East Asian successful globalizers:

⁷ See Temple (1999).

⁸ This is a vast literature: Barro (1991), Mankiw, Romer & Weil (1992), Sala-i-Martin (1997).

⁹ The importance of other variables should be examined conditional on inclusion of this core set. However, as effective instruments are not available for the key macroeconomic policy variables, the interpretation of the regression results is descriptive. Still a weak correlation between economic growth and aggregate measures of improvements in educational attainment should not lead to the conclusion that education does not matter.

- ❑ A high degree of integration into the global economy as exporters and/or as members of internationally integrated production systems, via FDI by multinational corporations.
- ❑ An investment regime which encourages technological upgrading geared to strengthen competitiveness. East Asia's superior performance has been the result of an economic policy which favored both engines of growth, investment and exports, and manufacturing industry growth. This regime strengthened the structure of incentives for investments that embody technical change, and included an industrial policy, as a coordinated whole bolstering industrial upgrading and manufacturing competitiveness. Thus, policy reasons both at the macro and industrial policy level have been determinant in the difference of performance of East Asia vs. Latin America: Superior incentives provided and at the macro and at the mezzo and micro levels have been crucial in East Asia's more dynamic investment and exports.
- ❑ Industrial policy has been at the core of these efforts towards technological upgrading and competitiveness strengthening. A more cautious approach to reform meant that in East Asia

industrial policy was not abandoned from the 70s to the 80s (as in Latin America) but continued to play an active role to this day. East Asia's industrial dynamism/competitiveness has thrived via the diversification of the structure of exports towards a more dynamic structure intensive in high and medium technology products, while Latin America has returned to a structure more intensive in natural resource-based products. Industrial policy, including Foreign Direct Investment policies, resulted in higher manufacturing industry growth and industrial exports, as opposed to Latin America's concentration on primary exports.¹⁰

- ❑ A higher degree of socio-economic inclusion achieved through a focus on the diffusion of productive assets and techno productive capacities through education and institutional innovations in the financial and technological areas.

2) *East Asia's superior economic performance*

The impact of these ingredients can be appreciated in East Asia's superior performance.¹¹ As far as the engines of growth are concerned, the region's investment regime translates into higher rates of

¹⁰ See Chica (2007a p. 119), Chica (2009 p. 11), ECLAC (2002 p. 207), Lall (2002b p. 4,14), Lall et ál. (2004 p. i, 13), Ocampo (2011 p. 25-26).

¹¹ Inclusion is not considered as this paper which focuses on engines of growth rather than mechanisms of development.

investment, and growth in manufacturing, and in manufactured exports. And of course industrial policy played an important role in achieving manufacturing industry and export growth. In this way, East Asia's superior performance can be seen at the macroeconomic level, related to the investment regime and at the industrial competitiveness level as a result of industrial policy. The former refers to better macrofundamentals. The latter concerns the concentration on exports of the most dynamic and technological advanced sectors in East Asia. The superiority of East Asia's economic performance can be easily illustrated with respect to: i) growth and its engines (investment, manufacturing industry growth, exports); ii) macro conditions and; iii) industrial competitiveness.

i) Contrast in Growth and its engines. The performance gap between East Asia and Latin America in terms of growth is the result of a gap in its engines,

stemming from East Asia's take off during the expansion before the oil shocks of the first part of the seventies, expansion which became explosive until the Asian crisis. Latin America's growth converged to East Asia's, particularly in exports, but Latin America lagged behind, due to Asia's superiority in investment and manufacturing industry growth. The difference is larger when China is included: Double growth rate, Three to four times manufacturing growth; Difference in exports and manufactured exports jump from 50% for East Asia to 100% when China is included (Table 1).

The Rate of growth was higher, more uniform among countries and stable in East Asia up to the Asian crisis and from the recovery from this crisis onwards. Its resilience in coming out of crises contrasts with Latin America's difficulty in achieving a higher and stable growth rate, so it remained above a 7.3% trend up to 98 and on this trend from

Table 1
LA-EA ECONOMIC PERFORMANCE
RATE OF GROWTH (%) - ANNUAL AVERAGE 1971-2008

	Latam	S.East Asia	East Asia	E.Asia&china
GDP	3.54	6.11	6.34	7.12
Total Exports	5.78	8.60	9.20	11.30
Investment	3.60	6.18	6.96	8.28
Industrial growth	2.31	7.99	8.07	8.18
Growth of Industrial exports	10.77	13.86	13.16	15.40

Source: Author's calculations.

98 (Graph 1). East Asia's superior macroeconomic performance translates into a more stable growth path, staying on trend and recovering faster from crises. East Asia's superior growth performance is a reflection of superior performance in terms of growth engines investment, manufacturing growth and exports. Latin America lags increasingly behind because the relative erosion is more severe in terms of a trend which includes the post crisis recovery; and to a lesser extent in the latter case because the expansion during the nineties was weaker, and the expansion at the beginning of the new millennium concentrated on primary exports to China, which clustered in Argentina and Brazil.

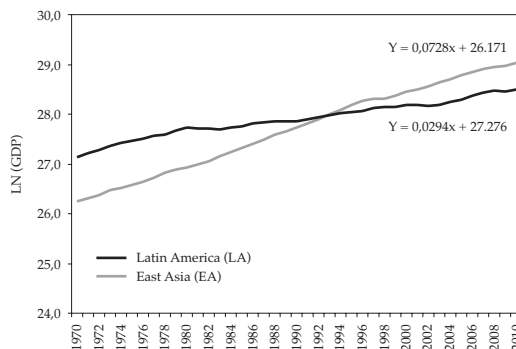
Investment: The rate of investment in Latin America is lower than in East Asia and it is becoming relatively weaker. While investment rates in East Asia exceeded 30% few Latin countries achieved rates higher than 20% (Table 2). Asian rates reached 40% in 1996, while Latin America's dropped to almost 20% during the 1980s debt crisis, sinking even further during the period 88-02 (Graph 2).

Industrial growth: Asian production and export patterns are biased towards more dynamic industrial sectors in terms of supply-technology and demand-consumption patterns. This specialization is far more potent in terms of capacities accumulation, learning, and externalities for the rest of the economy than Latin bias towards primary products and industrial products intensive in natural resources and labor (Table 7, Graph 6A, 6B). In

terms of industrial growth Asian superiority is more remarkable than in terms of GDP growth: (Table 3, Graph 3).

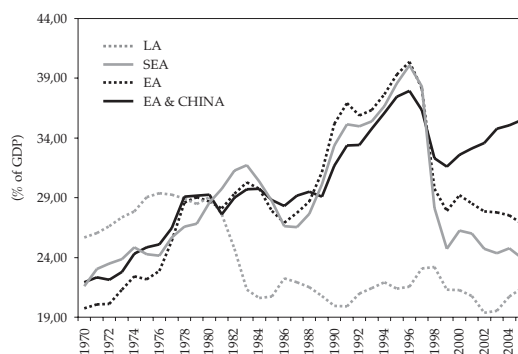
Exports: The coefficient Exports as a percentage of GDP has been far lower in Latin America and increasingly lags behind in spite of its improvement during the nineties (Graph 4). East Asia's growth

Graph 1
GDP TREND CYCLE



Source: Author's calculations.

Graph 2
LA-LE RATE OF INVESTMENT



Source: Author's calculations.

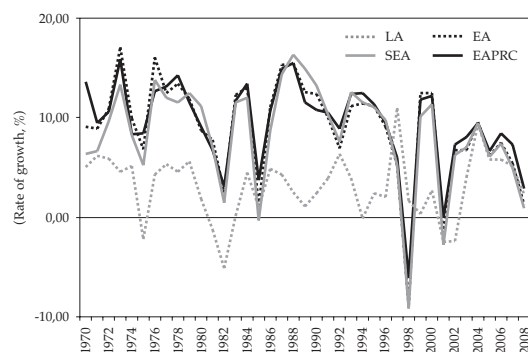
Table 2
LA-EA RATE OF INVESTMENT
(% of GDP)

Average Period	Latin America							
	AR	CH	CL	CR	BR	VN	MX	LA
1971-1980	25.58	18.88	23.27	19.31	33.37	30.45	21.27	28.20
1981-1990	18.81	19.75	23.82	16.37	25.27	20.56	18.00	22.14
1991-2000	21.65	28.39	21.39	19.88	22.39	17.25	19.34	21.60
2001-2008	18.10	29.28	19.74	20.32	20.81	13.26	20.43	20.36
Total 70-08	21.45	23.33	22.39	18.78	26.12	21.40	19.66	23.46

Average Period	East Asia and South East Asia								
	TH	IN	ML	SN	KR	PRC	SEA	EA	EAPRC
1971-1980	29.51	18.78	24.08	35.51	22.75	28.48	25.14	24.06	25.55
1981-1990	31.49	24.85	29.68	38.33	29.29	28.78	29.61	29.51	29.27
1991-2000	35.32	28.81	38.65	36.93	36.53	33.34	33.83	35.15	34.59
2001-2008	21.87	24.12	27.46	27.83	30.56	41.26	24.76	27.70	34.42
Total 70-08	30.64	24.14	30.33	35.63	29.67	31.78	28.85	29.31	30.46

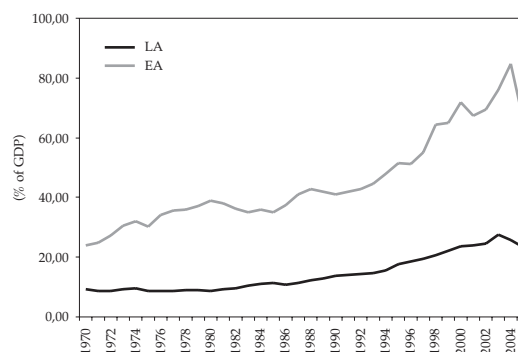
Source: Author's calculations.

Graph 3
LA-LE INDUSTRIAL GROWTH
(%)



Source: Author's calculations.

Graph 4
LA-EA EXPORTS GROWTH
(% of GDP)



Source: Author's calculations.

Table 3
LA-EA INDUSTRIAL GROWTH
(%)

Average Period	Latin America							
	AR	CH	CL	CR	BR	VN	MX	LA
1971-1980	1.23	10.08	1.41	6.95	5.71	2.19	4.13	6.07
1981-1990	-1.66	-0.18	4.62	2.13	3.13	2.94	2.89	0.38
1991-2000	0.21	-2.29	6.57	2.29	6.77	-0.91	3.00	-0.08
2001-2008	6.17	2.76	1.47	4.52	2.46	0.76	0.40	3.03
Total 70-08 (Log Rate)	1.24	2.58	3.62	3.95	4.63	1.27	2.72	2.31

Average Period	East Asia and South East Asia								
	TH	IN	ML	SN	KR	PRC	SEA	EA	EAPRC
1971-1980	10.12	9.46	10.23	11.88	11.33	7.78	10.42	10.82	10.78
1981-1990	8.10	12.48	7.09	5.83	9.39	7.34	8.37	9.10	9.08
1991-2000	8.67	6.28	9.81	7.39	6.72	10.68	8.04	7.29	7.33
2001-2008	5.40	4.59	3.50	4.19	4.41	8.82	4.42	4.31	4.87
Total 70-08 (Log Rate)	8.21	8.39	7.88	7.49	8.15	8.64	7.99	8.07	8.18

Source: Author's calculations.

rate and more uniform performance contrasts with the Latin heterogeneous performance (Chile, Brazil, Mexico and Costa Rica vs. Venezuela) (Table 4).

Placing the trends of exports and manufactured exports together, Asia's superior performance is illustrated by the order: Manufactured exports East Asia>Exports East Asia>Manufactured exports Latin America>Exports Latin America. This is due to an increasing gap in exports from 76 and thanks to the fact that Asia's manufactured exports converge to exports faster than in Latin America. Latin manufactured exports grow faster than exports but

this trend was reversed in 89-91 and 01-06 when primary exports grow much faster (reprimarization) (Graph 5). Latin manufactured and primary exports tend to close the gap from 85 to 00, but Asia stayed ahead (with a rate of growth 50% higher) to some extent thanks to an extraordinary performance by southeast Asia and China (Table 5).

Export diversification in southeast Asia show their ability to avoid the Dutch Disease and Natural Resource Curse syndromes. This is also shown by the increased participation of manufactured goods in GDP (Graph 6A, 6B).

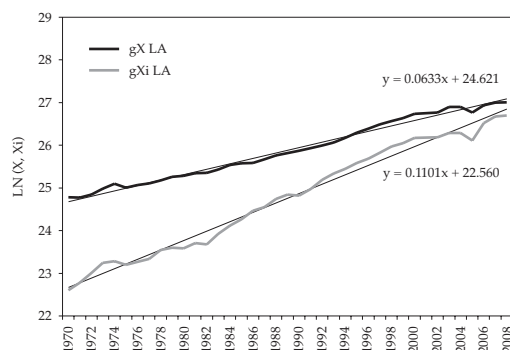
Table 4
LA-EA EXPORTS GROWTH
(%)

Average Period	Latin America							
	AR	CH	CL	CR	BR	VN	MX	LA
1971-1980	5.05	10.06	6.07	5.84	9.46	-1.54	8.09	5.05
1981-1990	4.50	6.76	5.87	6.24	6.83	2.69	7.52	5.91
1991-2000	6.72	9.01	5.42	10.39	6.57	4.19	12.55	8.60
2001-2008	11.45	3.73	3.98	4.30	7.07	-3.32	-2.14	3.02
Total 70-08 (Log Rate)	6.70	7.58	5.41	6.82	7.51	0.71	6.96	5.78

Average Period	East Asia and South East Asia								
	TH	IN	ML	SN	KR	PRC	SEA	EA	EAPRC
1971-1980	9.21	7.13	8.22	15.64	18.54	25.78	10.67	12.21	13.78
1981-1990	12.91	2.69	10.40	5.64	10.34	11.18	6.94	7.95	8.60
1991-2000	10.07	6.35	11.60	7.89	14.52	15.92	9.03	11.20	12.49
2001-2008	8.26	7.13	4.53	9.16	0.75	18.83	7.40	4.67	9.86
Total 70-08 (Log Rate)	10.21	5.75	9.02	9.64	11,58	17,86	8,57	9,24	11,25

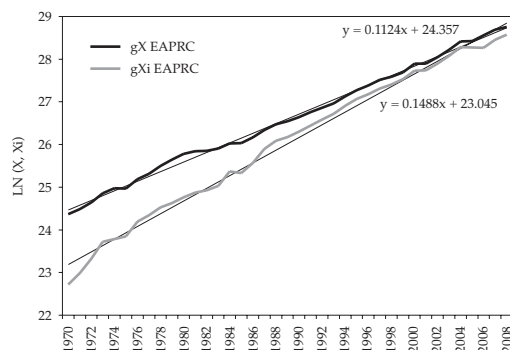
Source: Author's calculations.

Graph 5A
LA-EAPRC GROWTH OF TOTAL AND INDUSTRIAL EXPORTS



Source: Author's calculations.

Graph 5B
LA-EAPRC GROWTH OF TOTAL AND INDUSTRIAL EXPORTS



Source: Author's calculations.

Table 5
LA-EA GROWTH OF INDUSTRIAL EXPORTS
(%)

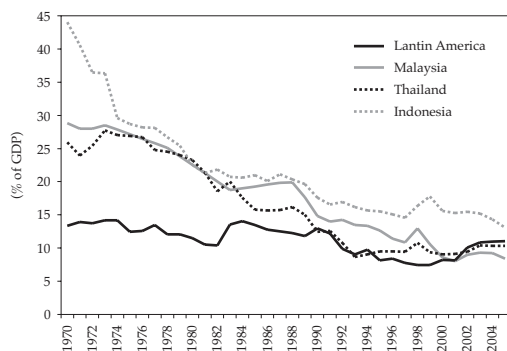
Average Period	Latin America							
	AR	CH	CL	CR	BR	VN	MX	LA
1971-1980	10.18	17.50	15.04	10.01	19.80	0.55	-1.93	9.81
1981-1990	6.78	8.89	8.33	5.69	10.16	20.72	20.47	12.38
1991-2000	7.83	12.68	7.99	19.33	7.76	2.92	19.08	13.51
2001-2008	9.16	6.36	7.30	6.88	8.10	0.17	5.69	6.53
Total 70-08 (Log Rate)	8.45	11.62	9.79	10.67	11.63	6.40	11.10	10.77

Average Period	East Asia and South East Asia								
	TH	IN	ML	SN	KR	PRC	SEA	EA	EAPRC
1971-1980	25.99	13.98	18.74	20.93	20.12	19.00	20.83	20.44	21.99
1981-1990	22.10	30.11	20.93	9.91	10.77	18.84	14.60	12.74	16.01
1991-2000	11.84	11.12	15.62	9.69	14.22	18.01	11.74	12.90	14.33
2001-2008	8.52	5.80	1.86	9.09	2.54	17.32	6.89	4.90	17.44
Total 70-08 (Log Rate)	17.57	15.75	14.94	12.58	12,40	18,34	13,86	13,16	17,44

Source: Author's calculations.

Graph 6A

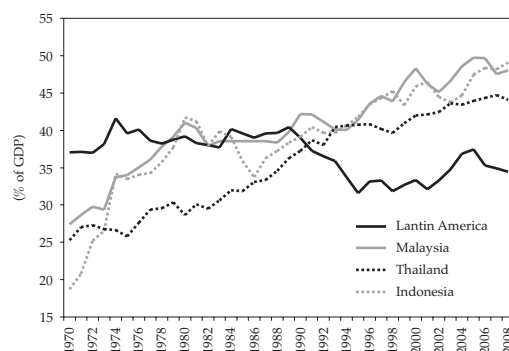
**SEA, EA, MALAYSIA, THAILAND, INDONESIA
VS. LA PRIMARY SECTOR SHARE IN GDP**



Source: Author's calculations.

Graph 6B

**LA, EA, MALAYSIA, THAILAND, INDONESIA
INDUSTRIAL SECTOR SHARE IN GDP**



Source: Author's calculations.

ii) *Macro conditions and industrial competitiveness*

a. Investment regime and stability; contrast and convergence. Two components of the investment regime that account for the impressive Asian investment effort were the investment-friendly management of macroeconomic prices (interest and exchange rates) and the stability that made possible that management, including keeping the macro imbalances under control.

Stability included economic activity to protect investment and price management to keep an exchange rate which favored investment and export competitiveness.

As far as macro conditions, up to the early 90s Latin America converged to East Asia macro stability and East Asia got closer to Latin instability as a result of forced openness to external savings. There is also convergence from 1995 onwards as East Asia became more dependent on external resources due to a combination of macro factors like opening of the capital account which generated a Dutch Disease syndrome¹² and micro such as margin compression as a result of fierce price competition and Chinese irruption in electronics.

As for the exchange rate, East Asia has been more successful avoiding exchange rate appre-

ciation. Its path was more stable, devaluating in 82-87 and 98 as a result of the Asian crisis. Latin America's oscillations were wider, appreciating from the second half of the 80s as a result of the use of the exchange rate as a nominal anchor in stabilization programs.

b. Domestic and external savings. East Asia has higher domestic savings. Its savings rate is around 30% vs. 22% for Latin America. Latin America depends on foreign savings to close its external and internal gaps.

External savings: No clear superiority appears as the cycles of capital flows coincide in both regions. Latin America enjoys more flows of capital and FDI up to 2000 than East Asia without China from 89 onwards up to the Argentine crisis, when its advantage is eroded.

FDI: Latin America pulled ahead of East Asia in the 95-99 boom when it caught up with China and from then it fell behind Asia from 04 onwards. East Asia increased its preponderance as a result of the 2000 and 2007 crises and the massive weight and dynamism of China.

Capital flows: Following the explosion from late 80s on to early 90s, both regions followed the same cycle with peaks in 93 and 96 and valleys during the Mexican, Asian and Argentine crises (94-95, 97-99,

¹² See Chica (2007a p. 65, 115-116, 123), Chica (2009 p. 30), Ffrench-Davis & Ocampo (2001 p. 18).

00-02). After the Argentine crisis, Latin recovery lagged far behind Asia's, even more with China. Unstable dynamics were observed in Latin America, determined by Brazil, Argentina and Mexico where the upsurges and collapses concentrated.

c. Industrial competitiveness. The comparison will be established in terms of the Competitive Industrial Performance Index (CIPI) and its components, exports and Value Added¹³, which show how the dynamic segments in terms of technological innovation and demand concentrates more clearly in Asia.

East Asia's superiority in terms of CIPI is clear. Five economies in East Asia are in the top 25, an impressive performance or improvement from 1980 to 2005 (Table 6).

Concerning industrial growth and export structure it has already been mentioned that Asia's specialization pattern is far more dynamic. The difference is larger in terms of the structure of exports. Although Latin improved in medium and high technology exports in Costa Rica and Mexico, Asia's superiority is clear because of increased exports in China and medium and high technology exports in Malaysia, Singapore and Korea. Chile and Indonesia are commodity exporters but Indonesia improved substantially its medium and high tech exports while Chile did not (Table 7).

Value added increased in East Asian countries and decreased in Latin Americans (Table 8).

II. Growth determinants: the structure and the main results of the analysis

After introducing the methodological sequence, the main results will be summarized in terms of five basic questions concerning growth determinants.

A. Methodological structure

The question of *Has globalization changed the mechanisms of development?* Will be tackled at three levels.

1) Growth determinants, examining the influence of the variables considered in the literature on growth; 2) Engines of growth, focusing on the core variables involved in the dynamics of growth within a Dynamic Increasing Returns (DIR) system; 3) Regional differences.

Five countries in East Asia and seven countries in Latin America were grouped in seven sub-groups, as follows:

LA				EA			
MX, CR	AR, CH	CL, VN	BR	NEA: KR	SEA: IN, ML, TH	SN	

In East Asia¹³: Korea in northeast Asia; Indonesia, Malaysia and Thailand in southeast Asia; and Singa-

¹³ China is not included despite its spectacular recent performance due to the fact that it was not part of the EAM in the usual sense of the period of strong growth which preceded the Asian Crisis of 96-7.

Table 6
COMPETITIVENESS INDUSTRIAL PERFORMANCE INDEX (CIPÍ) RANKING LA-EA

Ranking 2005	Ranking 2000	Ranking 1990	Ranking 1980	Country	CIP index 2005	CIP index 2000	CIP index 1990	CIP index 1980
1	1	1	2	Singapore	0.89	0.833	0.772	0.683
9	10	18	23	Korea	0.537	0.537	0.44	0.344
10	9	15	18	Taiwan	0.549	0.549	0.497	0.428
16	15	23	40	Malaysia	0.474	0.492	0.368	0.24
25	23	32	47	Thailand	0.423	0.386	0.281	0.213
26	31			China	0.418	0.387		
32	26	29	31	Mexico	0.379	0.374	0.297	0.282
35	32	59	54	Costa Rica	0.326	0.318	0.187	0.188
38	31	27	24	Brazil	0.308	0.324	0.321	0.31
42	38	54	75	Indonesia	0.282	0.292	0.199	0.119
52	37	34	33	Argentina	0.256	0.294	0.272	0.281
70	61	58	58	Colombia	0.212	0.199	0.189	0.179
74	64	62	50	Chile	0.206	0.191	0.186	0.196
80	66	60	68	Venezuela	0.200	0.187	0.187	0.154

Source: Author's calculations.

Table 7
CIPÍ FACTORS EXPORTS LA-EA

Country/year	Share of manufactured exports in total exports %					Share of medium/high technology exports in manufactured exports %				
	1980	1993	1998	2000	2005	1980	1993	1998	2000	2005
AR	35.00	48.97	52.14	52.70	55.70	26.80	23.60	33.22	35.30	32.10
BR	62.80	58.35	59.60	77.40	72.80	30.70	33.50	39.89	47.80	47.90
CH	26.00	41.16	43.21	50.30	52.40	12.80	9.79	11.60	13.20	11.70
CL	31.60	32.89	37.89	42.60	51.00	19.20	18.68	33.00	36.80	34.60
CR	27.90	32.37	60.00	73.30	75.70	33.60	21.96	50.82	66.30	59.80
MX	50.70	78.14	83.09	86.70	82.20	62.00	71.24	72.44	75.80	74.60
VN	29.80	29.95	35.01	37.00	9.60	3.60	11.95	18.84	12.20	53.80
PRC	3.10	59.34	67.38	92.10	95.10	18.50	28.46	38.93	45.30	57.50
IN	28.30	40.80	43.79	69.70	64.50	3.60	14.90	28.45	34.10	33.10
ML	48.50	73.95	81.74	89.30	85.50	28.50	62.87	71.37	76.40	72.10
SN	80.30	83.29	88.46	97.10	94.60	40.50	70.56	79.36	77.80	72.10
TH	68.00	64.68	72.97	85.50	87.40	13.10	38.05	51.43	59.50	61.60
KR	93.40	76.60	79.22	97.80	97.90	38.90	54.84	63.17	69.60	75.10

Source: Author's calculations.

Table 8
CIPI FACTORS VALUE ADDED

Country/year	Share of manufactured value added in GDP %					Share of medium/high technology production in manufacturing value added %				
	1980	1993	1998	2000	2005	1980	1993	1998	2000	2005
AR	29.00	18.28	17.23	16.50	17.20	36.70	27.74	30.23	30.20	25.90
BR	27.00	20.48	18.99	20.00	20.40	47.30	44.10	36.60	36.60	33.50
CH	20.90	16.97	17.06	17.60	17.00	41.70	19.68	16.36	16.40	22.70
CL	20.80	19.70	13.60	14.60	14.90	27.30	31.29	28.19	28.20	25.60
CR	19.80	20.10	20.83	23.10	21.30	21.00	22.96	22.12	22.10	22.50
MX	18.50	18.84	21.13	18.40	16.70	37.60	42.23	44.55	44.60	45.20
VN	15.70	14.01	17.77	18.50	17.70	28.30	23.74	16.93	16.90	16.90
PRC	33.00	31.80	33.80	32.10	34.10	47.40	37.15	43.14	43.10	46.90
IN	11.90	22.58	25.64	27.70	28.10	23.30	25.03	31.58	31.60	29.80
ML	19.40	25.51	27.18	32.60	32.20	34.90	51.65	54.88	54.90	49.80
SN	29.70	22.53	22.60	25.80	26.10	69.50	66.99	71.40	71.40	77.60
TH	22.60	29.04	30.82	33.60	36.10	20.60	21.43	34.70	34.70	37.80
KR	22.80	23.73	24.56	26.10	28.90	40.80	46.67	53.71	53.70	60.30

Source: Author's calculations.

pore which is located in southeast Asia but reaches Northern standards both in policy and performance. In Latin America, Mexico and Costa Rica are successful globalizers as manufactures exporters; Argentina and Chile are Southern Cone commodity exporters; Brazil; and Colombia and Venezuela.

From

$$g_t = \log y_t - \log y_{t-1} \quad (1)$$

And the hypothesis of β convergence

$$\log y_{i,t} - \log y_{i,t-1} = \alpha - \beta \log y_{i,t-1} + \mu_{i,t} \quad (2)$$

It follows that

$$g_t = \alpha - \beta \log y_{i,t-1} + \mu_{i,t}$$

Where subscript t denotes the year and subscript i denotes the country. In this absolute convergence model, where β measures the speed of convergence, $\mu_{i,t}$ captures the perturbations in the determinants of the steady state e.g. the production function, the rate of savings.¹⁴

¹⁴ Whereas absolute convergence operates when poorer areas grow faster than richer irrespectively of their characteristics; conditional when the speed of convergence increases with their distance to their own steady state (determined by those characteristics): given diminishing returns to capital, the lower the initial value of income per capita the higher the transitional growth rate, provided we control for those determinants of the steady state (Aghion & Howitt, 1999).

In order to overcome this simplification the data is conditioned to a set of variables $X_{i,t-1}$ ¹⁵ in the linear form

$$g_t = \alpha - \beta \log y_{i,t-1} + \gamma X_{i,t-1} + \mu_{i,t} \quad (3)$$

A variety of specifications, including/dropping the variables in/from the following general reduced form for rate of growth of GDP, in two variants, is tested:

GDPP form:

$$g_{i,t} = \alpha_0 - \beta \log y_{i,t-1} + \alpha_i i_{i,t} + \alpha_x x_{i,t} + \alpha_g g_{ii,t} + \alpha_p \hat{P}_{i,t} + \alpha_s s_{i,t} + \alpha_{fdi} fdi_{i,t} + \alpha_{pf} pf_{i,t} + \alpha_{inst} inst_{i,t} + \alpha_{educ} educ_{i,t} + \mu_{i,t}$$

rate of growth form:

$$g_{i,t} = \alpha_0 - \beta \log y_{i,t-1} + \alpha_i \hat{I}_{i,t} + \alpha_x \hat{X}_{i,t} + \alpha_g g_{ii,t} + \alpha_p \hat{P}_{i,t} + \alpha_s \hat{S}_{i,t} + \alpha_{FDI} \hat{FDI}_{i,t} + \alpha_{PF} \hat{PF}_{i,t} + \alpha_{inst} inst_{i,t} + \alpha_{educ} educ_{i,t} + \mu_{i,t}$$

Where:

Core:

$i_{i,t} / \hat{I}_{i,t}$: I ratio ($I_{i,t} / Y_{i,t}$) / Rate of growth (Rog) of I

$x_{i,t} / \hat{X}_{i,t}$: X ratio ($X_{i,t} / Y_{i,t}$) / Rog of X

$g_{ii,t}$: Industrial Growth

Capital flows:

$fdi_{i,t} / \hat{FDI}_{i,t}$: FDI ratio ($FDI_{i,t} / Y_{i,t}$) / Rog of FDI

$pf_{i,t} / \hat{PF}_{i,t}$: PF ratio ($PF_{i,t} / Y_{i,t}$) / Rog of PF

Macroeconomics:

$\hat{p}_{i,t}$: Rate of inflation

$s_{i,t} / \hat{S}_{i,t}$: S ratio ($S_{i,t} / Y_{i,t}$) / Rog of S

Education and institutions:

$inst_{i,t}$: Institutional risk index based on political rights and civil liberties scores

$educ_{i,t}$: Illiteracy rate

A piecemeal approach will be followed in tackling different aspects of this problem. Table 9 summarizes the econometric method used in each case, following a concatenation of stages carried out in the section in the corresponding cells, which can be subsumed within the three mentioned levels, as follows:

1. Growth determinants

□ Time series and Panel estimations are carried out to examine the influence of the variables considered in the literature including core variables (investment, exports) with the addition of industrial growth, macrofundamentals,

¹⁵ Starting with Barro & Sala-i-Martin (1991, 1992) and Mankiw, Romer & Weil (1992) cross section regressions are run with sets of conditioning variables.

capital flows and institutions and education variables. Time series by countries analyze the pervasiveness of the influence and its strength in relevant countries. The global panel focuses on influential factors across the countries in the two continents.

- ❑ Time series estimation focus on the pervasiveness of the influence of capital flows given this question mark over its influence and the pervasive presumption that they are a crucial engine of growth. The specification includes the core, macrofundamentals and capital flows but excludes the institutions and education variables, whose influence was shown by time series as lacking the pervasiveness.

- ❑ Cross section estimation focuses on convergence and productive development.¹⁶

2. *Engines of growth, focusing on core variables of a DIR system*

- ❑ Time series are used to establish whether gi-I-X constitutes a dynamic core of engines of growth within the growth determinants.
- ❑ Time series including industrial growth with the dynamic core, including and excluding exports, are used to evaluate whether and

how the influence of exports is affected by the introduction of industrial growth.

- ❑ Cointegration, VAR and Granger Causality tests establish whether g-I-X constitutes a dynamic system; and given that industrial growth has a stronger influence than exports, whether it has a long-term relationship with g, I and exports (is cointegrated with the core variables).

3. *Regional differences*

- ❑ Regional panels establish differences in the extent to which the influence of individual variables differs between Latin America and East Asia. Differences in industrial growth, savings and exports are observed.

Additionally, Least Squares Dummy Variable (LSDV) estimations are carried out to establish differences between continents, subgroups and countries, interpreting the coefficients of the dummy variable as indexes of the form in which the joint effect of growth determinants upon GDP growth is affected by location. In this way, the coefficient of the dummy is seen as a measure of the strength of that joint effect and larger differences within continents are interpreted as a higher degree of heterogeneity.

¹⁶ The results of the stationarity tests, which point to more solid statistical results in the case of the rate of growth specification.

- Summary of the differences established by the different methods.

Investment has, according to panel, a similar influence in both regions but slightly stronger in Asia, according to time series; the influence of industrial growth, savings and CIPI is stronger in East Asia. Investment is the stronger and most pervasive with no clear superiority of either region, and industrial growth and savings are strong, more so in Asia. The influence of the rest of the variables is beset by ambiguity due to lack of robustness. Even the influence of exports is called to question in this way, although a stronger one is observed in Latin America. The other topical case is capital flows: albeit the results in terms of countries are interesting (FDI in Singapore and Chile and capital flows in Argentina, Thailand and Indonesia), the comparison between continents does not shed much light, although it might be surmised that these flows are more influential in Asia.

The fact that the influence of exports is stronger Latin America and that one of industrial growth in East Asia points to a stronger correlation $X-g_i$ in Asia. The level of cointegration of the dynamic core g, I, X, g_i is higher in East Asia and this dynamic structure is more determined by Kaldorian cumulative causation linking $g-I-X$ in East Asia according to VAR and Granger causality.

B. Main results

Five questions will be dealt with:

- *What are the Engines of growth?* Investment continues to play this role. The influence of exports is not as robust as that of investment and is frequently superseded by industrial growth. Investment and industrial growth influence is stronger in East Asia; Exports' is more affected by the introduction of industrial growth in East Asia (Table 9).
- *Do these variables constitute a dynamic core interacting within a DIR system?* They do and the dynamic system is more integrated in Asia.
- *Do macrofundamentals, capital flows, and institutional variables play a similarly important role?* Domestic savings, particularly in East Asia and big, crisis-ridden Mexico and Brazil, is far more important than external savings. Inflation does not play in some Asian countries the expected negative role that it plays in Latin America. Neither capital flows nor institutional variables come close to the pervasive influence of investment, savings and industrial growth. The unexpected weak result on portfolio flows extends to FDI. Although the influence of institutions and education variables is not as weak as capital flows it is also rather exceptional.

Table 9
TOPICAL/AMBIGUOUS INFLUENCES

TS (ROG)		
Method/Variable	Synthesis	Countries
X	LA (5 countries) > EA (2 countries)	LA (BR*, CL**, CR*, MX*, VN**) > EA (ML*, TH*)
FDI	LA (0 countries) < EA (1 country)	EA (SN**)
PF	LA (0 countries) < EA (1 country)	EA (TH*)
TS (GDPP)		
Method/Variable	Synthesis	Countries
X	LA (1 country) > EA (0 countries)	LA (CR*)
FDI	LA (1 country) > EA (0 countries)	LA (CH**)
PF	LA (1 country) < EA (2 countries)	LA (AR*) < EA (TH**), EA (IN*)
PD (coefficients in parentheses)		
Method/Variable	Synthesis	Coefficients
X	LA* > EA	LA* (0.0389014) > EA (-0.0001604)
FDI	Not significant	LA (0.0001741) > EA (-0.0008623)
PF	Not significant	LA (0.0000284) > EA (0.00000208)

Source: Author's calculations.

- ❑ *Does convergence hold and is competitiveness that important for growth?* Absolute or conditional convergence do not operate in East Asia nor in any region during the final period. They do in both regions in the complete and initial periods introducing investment and exports; but not for Latin America in the initial period introducing investment, exports, and industrial growth. As for competitiveness, it is indeed important, even more so in East Asia.
- ❑ *Are there regional differences in the workings of the engines of growth?* Investment has a similar

influence in both regions but the influence of industrial growth, savings and productive development is stronger in Asia. Although the comparisons concerning the other variables are eroded by the lack of robustness, exports' influence seems to be stronger in America. While the results do not support a statement either way in the case of FDI and portfolio flow influence, inflation is weaker in Asia as it is convergence. The influence of exports is stronger in America and industrial growth in Asia. The level of cointegration of the dynamic core g , I , X , g_i is higher in East Asia and this dynamic structure

is more determined by Kaldorian cumulative causation.

III. Econometric results

A. Growth determinants

The influence of the variables considered in the literature will be examined with time series and global panel estimations. The evaluation of the relative strength of the influence of a variable will be carried out in terms of three factors: robustness to changes in methods and specifications (in terms of GDPP and rate of growth¹⁷); number of countries in which the variable is significant; magnitude of the impact as measured by the coefficient. Further, when adding up into a balance in order to gauge that influence, additional information about the performance of an economy will be taken into consideration.

1. *Time series and panel estimation: a general specification*

The specification includes the core (I, X), gi , macro-fundamentals, capital flows, and institutions and education variables. The global panel focuses on influential factors across the countries in the two continents. While both results confirm a robust influence of I , gi and S , the former places a question

mark over the influence of capital flows and the latter questions the influence of exports.

1) *Time series*: the complete model. Estimations (Table 10A) proceed from a general specification including all the variables (regression 1) to concentrate on more topical issues. First, the influence of capital flows including FDI. Second, the way in which of industrial growth and exports combine and compete. The specifications include variables in terms of rates of growth and GDP percentage (GDPP).

i) *Core: I, X, gi* : Investment is the most robust influence across the whole sample in the two continents. The strongest influences are observed in Argentina, Brazil and Mexico and to some extent Chile and in Thailand. In terms of rate of growth (Table 10A reg. 1A) investment is significant through the sample with the only exception of Indonesia, and the strongest influence is observed in Argentina and Thailand (Table 10B). In terms of GDPP (Table 10A reg. 1B) it is significant through the sample with the only exception of Colombia and Singapore, and the strongest influence is observed in Mexico and Thailand.

Exports are significant in seven countries but only in terms of rate of growth, it is not so as GDPP, and the strongest influence is observed in Chile and Malaysia (Table 10A reg. 1A).

¹⁷ In both specifications both g_i and \hat{p} are Rate of growth; and $inst$ and $educ$ are indexes.

Table 10A
TIME SERIES BY COUNTRIES

Independent variables																
No.	Model	i	\hat{i}	x	\hat{X}	g_i	s	\hat{S}	\hat{p}	f_{ti}	\hat{FDI}	pf	$\hat{P\hat{F}}$	$inst$	$educ$	
1A (ROG)	Core+Capital flows+ Macroeconomic+ Institutional+ Education		AR**, BR**, CH**, CL**, CR**, MX**, VN**, KR*, ML**, SN**, TH**		BR*, CL**, CR*, MX*, VN**, ML*, TH*	BR*, CH**, CR*, IN*, ML**, SN*		AR*, CL*, KR*, SN*, TH*	CH**, CR**		ins		ins	VN*, ML*	KR*, CH*,	
		AR*, BR**, CH**, CR**, MX**, VN**, KR**, IN*, ML**, TH**		ins		AR*, CH**, CR**, KR**, IN*, ML**, SN*	BR*, MX*, SN**, TH**			CH*			AR*, TH**		VN*	KR*
2A (ROG)	Core+Capital flows+ Macroeconomic+ Institutional+ Education		AR**, BR**, CH**, CL**, CR**, MX**, VN**, KR*, ML**, SN**, TH**		BR*, CL**, CR*, VN**, ML*, TH*	BR*, CH*, CR*, IN*, SN*		AR*, BR*, CL**, MX*, SN*, TH*	CH**, CR**, KR*		ins		ins			
2B (GDPP)		AR**, BR**, CH**, CR**, MX**, VN**, KR**, IN*, ML**, TH**		ins		AR*, CH**, CL*, CR**, KR**, IN*, SN**	BR**, MX**, SN**, TH**			CH*			AR*, IN*, TH*			
3A (ROG)	Core+Capital flows		AR**, BR**, CH**, CL**, CR**, MX**, VN**, KR*, ML**, SN**, TH**		BR*, CL*, CR*, VN**, ML*, TH**	BR**, CL*, CR*, KR**, IN**, ML*, SN**					SN**		TH*			
3B (GDPP)		AR**, BR**, CH**, CR**, MX**, VN**, KR**, IN*, ML**, SN**, TH**		ins			BR**, CH**, CL*, CR**, KR**, IN*, ML*, SN**				ins		AR*, IN*, TH*			

Significant at 90%. ** Significant at 99%. ins: Included but not significant and coherent with the expected sign. Only the countries in which the variables are significant and have the expected sign are listed here, and the exceptions are included in the detailed presentations of the Appendixes (attention called in footnotes 36, 41, 44, 45, 46, 47, 54 and 55).
Source: Author's calculations.

Table 10B
COUNTRIES STRONGEST INFLUENCE

\hat{I}	i	\hat{X}	x	gi (ROG model)	gi (GDPP model)
LA+EA: AR (0.28), EA: TH (0.23) Others: BR (0.28), CH (0.25).	LA+EA: MX (1.76), EA: TH (1.09), Others: CH (1.48), BR (1.47).	LA+EA: CL (0.13), EA: ML (0.11), Others: VN (0.12), CR (0.11).	ins	LA+EA: ML (36.18), LA: CH (31.63), Others: IN (19.37), SN (12.40).	LA+EA: CH (49.83), EA: KR (40.31), Others: ML (33.26), CR (21.14).
\hat{S}	s	\hat{p} (ROG model)	\hat{p} (GDPP model)	\hat{FDI}	\hat{fdi}
LA+EA: SN (0.11), LA: CL (0.06), Others: KR (0.11), TH (0.07).	LA+EA: SN (1.09), LA: BR (0.61), Others: TH (0.52), MX (0.46).	LA+EA: CR (-0.09), Others: CH (-0.03).	LA+EA: CR (-0.12), Others: CH (-0.03).	ins	LA+EA: CH (0.73).
\hat{PF}	pf	$inst$ (ROG model)	$inst$ (GDPP model)	$educ$ (ROG model)	$educ$ (GDPP model)
ins	LA+EA: TH (0.46), LA: AR (0.33).	LA+EA: ML (-1.71), LA: VN (-0.88).	LA+EA: VN (-1.77).	LA+EA: KR (-0.60).	LA+EA: CH (-0.37), EA: KR (-0.31).

Coefficients in parentheses.
Source: Author's calculations.

Industrial growth is consistently more significant than exports, with the strongest influence in Korea, Malaysia, Indonesia and Chile. In terms of rate of growth (Table 10A reg. 1A) it is significant in Malaysia, Chile, Indonesia, Singapore, Costa Rica and Brazil and has the strongest influence in Malaysia and Chile. In terms of GDPP (Table 10A reg. 1B) it is in Chile, Korea, Malaysia, Costa Rica, Indonesia, Argentina and Singapore and the strongest influence is observed in Chile and Korea.

ii) Macrofundamentals: Savings has a stronger influence in East Asia while the expected negative influence of inflation is stronger in Latin America. Both facts are interesting: the stronger influence of domestic savings in Asia corresponds with a stronger influence of external savings in Latin America.

Savings is significant in terms of rate of growth in Singapore, Korea, Thailand and Argentina, and the strongest influence is observed in the first two countries. In terms of GDPP in Singapore, Brazil, Thailand and Mexico, being stronger in Singapore and Thailand. Inflation is significant in terms of rate of growth and GDPP in Costa Rica and Chile.¹⁸

iii) Capital flows. None of the forms of capital flows, FDI and portafolio flows (PF), came close

to the pervasive influence of savings, which points to a stronger influence of domestic savings than external savings on growth. In terms of rate of growth (T3.1-1-A reg. 1A) neither FDI or PF are significant for any country in the sample, in terms of GDPP (T3.1-1-A reg. 1B) FDI is significant only for Chile and PF is significant only in crisis ridden Thailand and Argentina, countries which suffered severe reversions in capital flows.

iv) Institutional: The influence of institutions and education variables is stronger than that of capital flows. Risk has a robust influence in Venezuela and education in Korea. Risk is significant in Venezuela and education in Korea. Risk is significant in Venezuela in rate of growth and GDPP. Illiteracy is significant in Korea and Chile.

2) Panel across the countries in the two continents: Panel estimations across the two continents (Table 11, reg. 1) confirm the influence of I, gi, S and questions exports and capital flows.

3) Time series estimation focusing on the pervasiveness of the influence of capital flows: Given the question mark over this influence and the pervading presumption that they are a crucial engines of growth, it is worth focusing on FDI and PF. The

¹⁸ This effect, which is stronger in Singapore (both in terms of Rate of growth and GDPP), might point (there as well as in KR) to a combination of, moderate inflation helping to maintain margins; and on the other hand, concentration of income and savings in an actively investing entrepreneurial class. This kind of investment regimes, which allocated rents has been labelled the profits-I-X nexus.

Table 11
GLOBAL PANEL
(Fixed effects)

No.	Model	Independent variables						
		I	X	gi	S	p	FDI	PF
1	Core + Capital Flows + Macroeconomics	**	ins	**	**	*	ins	ins
2	Core + Capital Flows	**	ins	**			ins	ins
3	Core + Macroeconomics	**	ins	**	**	*		
4	Core	**	ins	**				

Note: * Significant at 90%. ** Significant at 99%.

Source: Author's calculations.

specification includes the core, macroeconomics and capital flows but excludes the institutions and education variables, whose influence was shown by time series as lacking the pervasiveness of I, gi and S. The results also question that presumption as well as the one about the influence of exports.

The ambiguity of the results on capital flows is shown by its exceptional significance and the lack of robustness in terms of specification (if macroeconomics are introduced only estimations in terms of GDPP have the expected sign) and stability of the coefficients (turning sometimes

negative significant). In the model core+KF+PF FDI is significant positive only in Chile and only in terms of GDPP (Table 10A reg. 2B)¹⁹ and PF is significant positive again only in terms of GDPP in Indonesia, Thailand and Argentina.²⁰

In the Model core + KF FDI is significant positive only in Singapore and only in terms of rate of growth (Table 10A: reg. 3A)²¹ while PF is significant positive only in Singapore in terms of rate of growth (Table 10A reg. 3A)²² and in Indonesia, Thailand and Argentina in terms of GDPP (Table 10A reg. 3B).

¹⁹ FDI in terms of rate of growth (Table 10A reg. 2A) is significant in Argentina but negative.

²⁰ PF in terms of GDPP is negative and significant in Singapore (Table 10A reg. 2B); in terms of rate of growth in Argentina and Venezuela.

²¹ FDI is negative and significant in Malaysia and Argentina for the rate of growth specification (Table 10A reg. 3A).

²² PF is negative and significant in Argentina, Venezuela and Brazil for the rate of growth specification.

2. Convergence and competitiveness

Do convergence and competitiveness play a similarly important role? The results of the cross section estimations focusing on convergence and productive development²³ question convergence and confirm the influence of industrial competitiveness. The negative significant influence of initial income vanishes with the introduction of the engines of growth (i.e. there is not conditional convergence, only absolute) except for the core without g_i when it survives in the initial period for both regions. The irrelevance of convergence is stronger in Asia and when g_i is included. Competitiveness is more influential in Asia.

1) *Convergence*: Convergence is an exceptional case. (Table 12) There is absolute convergence in the two regions for the total and the initial period but

not for the final period; In Latin America only in the initial period; conditional only in both regions on the total and initial period and only for the core with exports (not with industrial growth). Hence there is no convergence in Asia and for the final period; Conditional convergence is not relevant in individual continents as it collapses for Latin America in the initial period. The core variables explain growth better than initial income.

Convergence absolute or conditional is not present in Asia nor during the final period in the two regions. It holds for both in the complete and initial periods when investment and exports are introduced, but not for Latam in the initial period when I , X and I , g_i are introduced. Convergence is weaker in East Asia where the sign for initial income is positive, and its relevance for Latin America is limited by specification (only absolute) and period (only in the initial).

Table 12
CS CONVERGENCE

Model	LA+EA			LA			EA		
	1	2	3	1	2	3	1	2	3
Absolute	C*	C*			C*				
Conditional core I,X	C*	C**							
Conditional core I, g_i									

C: Convergence. 1: 1970-2005. 2: 1970-1990. 3: 1991-2005.

Note: * Significant at 90%. ** Significant at 99%.

Source: Author's calculations.

²³ While cross section include the core I , X or the alternative I , g_i , in the estimations for competitiveness the only variable introduced along with CIPI is I .

2) *Productive Development*: Competitiveness is more influential in East Asia, although it is significant for both continents (Table 13) and for Asia, it is not so for Latam.²⁴

Table 13

PRODUCTIVE DEVELOPMENT

Variable/Region	Investment	CIPI
LA+EA	**	*
LA	*	
EA		*

Note: * Significant at 90%. ** Significant at 99%.

Source: Author's calculations.

B. Engines of growth

This analysis focuses on the core of variables to establish whether they constitute a DIR dynamic system. To do this two kinds of econometric experiments are carried out. First, time series dropping all the non-core variables except for *gi*. Second cointegration, VAR and causality tests. The overall conclusion is that these variables constitute a dynamic core interacting within a DIR system in a more integrated fashion in Asia.

1. *Time series to establish whether gi-I-X constitutes a dynamic core of growth engines*

The main results of the time series experiments are as follows. Investment is the main engine of

growth. The influence of exports is not as robust as that of investment and is frequently superseded by industrial growth, *gi*; the influence of investment and *gi* is stronger in Asia. Exports' influence is more affected by the introduction of *gi* in Asia.

1) *Time series focusing on the core*. In the core specification without *gi*, investment is again the most robust influence across the whole sample in the two continents (Table 14A reg. 1A, 1B). The strongest influence is observed, in terms of both rate of growth and GDPP in Brazil and Indonesia (Table 14B).

The influence of exports is far less pervasive. It is significant in Costa Rica in rates of growth and GDPP, and in Venezuela, Colombia, Malaysia and Thailand in rates of growth. Malaysia showed the strongest influence.

Adding *gi* (Table 14A reg. 2A and 2B) investment has the most robust influence. Its influence is stronger in Brazil and Thailand.

The influence of exports is less pervasive. It is significant in Venezuela, Chile, Costa Rica, Malaysia and Thailand in the rate of growth model and nowhere in the GDPP model. Its strongest influence is seen in Venezuela and Malaysia (Table 14C).

²⁴ 0.4714 for Latam as opposed to 3.4246 for East Asia.

Table 14A
TIME SERIES CORE

No.	Model	i	I	x	X	g^i
1A (ROG)	Core		AR**, BR**, CH**, CL**, CR**, MX**, VN**, KR**, IN**, ML**, SN**, TH**		CL**, CR**, VN**, ML**, TH*	
1B (GDPP)		AR**, BR**, CH**, CL*, CR**, MX**, VN**, KR**, IN**, ML**, SN*, TH**		CR*		
2A (ROG)	Core+gi		AR**, BR**, CH**, CL**, CR**, MX**, VN**, KR**, IN**, ML**, SN**, TH**		CL*, CR*, VN**, ML*, TH*	BR**, CH**, CL*, CR*, KR**, IN**, SN**
2B (GDPP)		AR**, BR**, CH*, CR**, MX**, VN**, KR**, IN**, ML**, SN**, TH**		ins		BR**, CH**, CL**, CR**, KR**, IN**, ML*, SN**

Note: * Significant at 90%. ** Significant at 99%.

Source: Author's calculations.

Table 14B
COUNTRIES STRONGEST INFLUENCE CORE WITHOUT gi

I	i	X	x
LA+EA: BR (0.44). EA: IN (0.31). Others: CH (0.32). TH (0.30).	LA+EA: BR (1.85). EA: IN (1.40). Others: MX (1.59), AR (1.43).	LA+EA: ML (0.19). LA: CR (0.18). Others: VN (0.17), CL (0.13).	LA+EA: CR (0.56).

Coefficients in parenthesis.

Source: Author's calculations.

Table 14C
COUNTRIES STRONGEST INFLUENCE CORE

I	i	X	x	$g_i(\text{ROG model})$	$g_i(\text{GDPP})$
LA+EA: BR (0.38). EA: TH (0.29). Others: AR (0.29), MX (0.27).	LA+EA: BR (1.53). EA: TH (1.16). Others: MX (1.45), AR (1.39).	LA+EA: VN (0.17). EA: ML (0.16). Others: CL (0.11), CR (0.10).	ins	LA+EA: KR (30.41). LA: CH (20.20). Others: SN (28.87), IN (16.19).	LA+EA: SN (34.63). LA: CH (28.50). Others: KR (31.43). CR (25.78).

Coefficients in parenthesis.

Source: Author's calculations.

The influence of gi is far more robust than exports. In terms of rate of growth (Table 15A reg. 2A) it is significant in seven countries; In terms of GDPP in eight countries. The strongest influence overall is in Korea, Singapore and Chile where the gi coefficients reach a higher value than those of exports and investment.

In this way the order of these three variables can be summarized as follows. In terms of strength (magnitude of the coefficients) $gi > I > X$; and in terms of pervasiveness (countries where is significant): I (12 countries) $> gi$ (7 countries) $> X$ (5 countries) for the rate of growth model (Table 14A reg.2A). I (11 countries) $> gi$ (8 countries) $> X$ (zero) for the GDPP model (Table 14A reg 2B).

2) *Time series including gi in the dynamic core: the impact of gi upon exports.* Due to the weight of manufacturing in East Asia, in production and exports, a strong impact of the introduction of gi upon exports can be expected. This effect was confirmed. Export coefficient decreased in terms of rate of growth in the entire sample (except Indonesia

and Thailand, countries with important primary X) and in Korea, Malaysia, Chile, Colombia, Costa Rica, Mexico and Venezuela, in terms of GDPP. This effect is stronger in East Asia, but it is also important in Costa Rica and Chile: Table 15.

It is worth considering the mechanisms at work in the effect of exports on growth, along with those involved in the effect of investment. As it was mentioned, the weaker effect of exports in Asia can be interpreted in terms of the long run supply learning effect as follows: Manufactured exports are more important in Asia than in Latam where primary exports are more important. On the other hand, an intimate correlation between gi and manufactured exports, suggests that most of the learning effect is captured in East Asia by gi so rendering exports insignificant.

Growth in Latam has been more foreign exchange-constrained. Hence it is plausible that a short run import capacity effect played an important role on growth. Similarly, the long run demand multiplier effect may be more important in Asia

Table 15
THE IMPACT OF gi UPON EXPORTS

	Regions*							Countries**						
	LA	EA	KR	CR	CH	ML	CL	BR	MX	SN	VN	AR	TH	IN
$\Delta\beta X$	-0,0135	-0,0413	-0,1097	-0,0714	-0,0523	-0,0328	-0,0240	-0,0177	-0,0083	-0,0051	-0,0050	-0,0005	0,0016	0,0195

* Weighted averages; ** Ranking of countries.

Source: Author's calculations.

given the fact that production within industrial clusters is more networked than primary production.

2. Cointegration, VAR and Granger causality tests on the dynamic system

The analysis of the dynamic structure of the core system proceeds in two stages. First, cointegration estimations are carried out in order to establish whether g-I-X constitutes a dynamic system and, given that gi has a stronger influence than exports, whether gi is cointegrated with g, I and X. Second the dynamic structure of the g-I-X core is observed with VAR and Granger causality tests.

1) *A long term relationship*: Both the variables of the core set g-I-X and these with the addition of gi

are cointegrated. Notably this is so across the whole sample in the two continents with the exception of Mexico (Table 16A).

Cointegration is stronger in Asia in the two dynamic systems g-I-X and g-I-X-gi and, as it was already mentioned, the system g-I-gi shows also a higher degree of cointegration in Asia (Table 16B).

2) *The Dynamic Structure: VAR and causality*. VAR models were estimated only for the core specification for 1 or 2 lags with or without the constant term (Table 17A), adding a Granger causality test (Table 17B). Which lags are included depends on the general adjustment of the model (R2) and the lag order statistics (Akaike Information Criterion and Schwarz Bayesian Information Criterion).

Table 16A
COINTEGRATION

Cointegration	Latin America							East Asia				
	AR	BR	CH	CL	CR	MX	VN	KR	IN	ML	SN	TH
Core	**	**	**	**	**	*	**	**	**	**	**	**
Core+gi	**	**	**	**	**	*	**	**	**	**	**	**

Note: * Significant at 90%. ** Significant at 99%.

Source: Author's calculations.

Table 16B
WEIGHTED AVERAGES Z DICKEY-FULLER

	Core I,X	Core+gi	I,gi
LA	-4,6510	-4,7156	-4,7326
EA	-6,0113	-5,7967	-6,0192

Source: Author's calculations.

The VAR results basically point to a double contrast in dynamic structure. On one hand, it is more determined by Kaldorian cumulative causation linking g-I-X as shown by the statistical significance of the coefficients in East Asia than in Latam. On the other hand in Latam these links are stronger in successful globalizers (Costa Rica and Chile) than in other countries of the region.

Table 18A summarizes the following results. The multiplier/Embodied Technical Change effect of investment on growth is limited to Costa Rica

and Korea. The foreign exchange for imports/learning effect of exports on growth is limited to Chile and Thailand. The accelerator/competitiveness pressure effect of exports on investment is limited to Thailand. The Embodied Technical Change effect of investment on exports is limited to Chile, Costa Rica and Indonesia. Additionally, a result that supports the endogeneity of growth in a Kaldorian cumulative causation fashion, the accelerator effect of growth on investment and the investment regime (productivity) effect of growth on exports are more widespread.

Table 17A
VAR

Dependent variables	Independent variables					
	g		i		x	
	t-1	t-2	t-1	t-2	t-1	t-2
g			CR, KR		CH, TH	
i	BR, CH, IN, SN				TH	
x	CH, CL, ML, TH		CH, IN	CR		

Source: Author's calculations.

Table 17B
GRANGER CAUSALITY

Dependent variables	Independent variables					
	g	i	x	\hat{x}^i	\hat{x}^g	\hat{g}^i
g		CL, ML	CH, TH	CH, MX, ML, TH		
i	CH, IN, KR, SN		CR, CH, TH		IN, CH, KR, SN, TH	
x	CL, CR, CH, IN, KR, ML, TH	CL, CR, CH, IN, KR, SN, TH				CL, CR, CH, IN, KR, SN, TH

Source: Author's calculations.

As for Granger causality (Table 18B), growth is caused by investment, exports or both in Malaysia, Thailand and Chile. Investment is caused by growth, exports or both in Chile, Indonesia, Korea, Thailand and Singapore. Exports are caused by growth, investment or both in Colombia, Costa Rica, Chile, Indonesia, Korea, Singapore and Thailand.

Hence the $x \rightarrow g$ (foreign exchange for imports / learning) effect is limited to Chile and Thailand, while endogeneity effects of g in Kaldorian cumulative causation fashion are more widespread: $g \rightarrow i$ (accelerator effect) in Brazil, Chile, Singapore and Indonesia; and $g \rightarrow x$ (Increasing returns -productivity-) in Colombia, Chile, Malaysia and Thailand. Growth is caused by investment, exports or both in Malaysia, Thailand and Chile. Therefore, two facts thus stand out. First, effects of investment and growth on exports are more widespread than effects of exports on investment and growth. Then causality running from growth to exports is as soundly grounded as the other way around, which is the widely assumed effect²⁵ Latam globalizers Chile and Costa Rica stand out as having important dynamic links among core variables with Mexico and Argentina. The dynamic structure of East Asia, Costa Rica and Chile vs. Mexico is more

determined by the cumulative causation Kaldorian virtuous circle $I-X-g-I$ ²⁶ is related to the effects of a low rate of investment in the latter. The fact that the explosion of FDI and PF was accompanied in the Mexican case by an erosion in investment contributes to explain the implied weakness of the links $I-X-g-I$, which plausibly is a factor contributing to the jobless Mexican growth pattern which uncouples the links X -Value Added-employment brought about by globalization.

Finally, another interesting comparison within Latam concerns the relationship $g-X$: whereas causality runs from x to g in Chile, the normally assumed direction, it runs in the opposite direction in the Colombian case, which illustrates the investment regime situation where competitiveness depends on productivity gains at higher capacity utilization stemming from higher domestic demand.

C. Regional differences

1. Regional panels

Panels by regions show a stronger influence of industrial growth and savings in East Asia and of exports in Latin America.

²⁵ It seems that the increasing returns mechanisms of the g 's effect on x (Short Term: u/β : capacity utilization/productivity; Long Term: DIR effect on β a la Smith-Young-Verdoorn-Kaldor) are as pervasive as (and frequently work together with) the commonly assumed x 's effect on g (Short Term: Foreign exchange for imports; Long Term: Learning). Indeed, CL seems to be a case in point of the relevance of Krugman; investment regime argument on those lines on import protection as export promotion (Krugman, 1984).

²⁶ i.e. Mexico's exceptionally weak degree of cointegration, and poor results concerning links among these variables in the VARs.

The following coefficients summarize the strength of the influence of the variables in the two continents (Table 18 reg. 1, 2, 3 and 4): Investment: LA (0.2354) > EA (0.2103); Exports: LA (0.0389) > EA (-0.00016: not significant); Inflation: LA (0.0836) < EA (0.1368); LA (-0.0009) < EA (-0.0754); Savings: LA (0.0135 not significant in Table 18 reg. 3) < EA (0.0428); FDI: LA (0.00017) > EA (-0.00086) none significant; PF: LA (0.0000284) > EA (0.00000286) none significant (Table 18 reg. 1 and 2). So the most important differences are in exports in favor of Latin America and in industrial growth and savings in East Asia. There are no important differences in

investment, which is highly significant across both continents, and in FDI and PF, which are not at all.

Additionally, Least Squares Dummy Variable (LSDV) estimations show the differences between continents, groups and countries, interpreting the coefficients of the dummy variable as an index of the form in which the joint effect of growth determinants upon growth are affected by location. The coefficient of the dummy is seen as a measure of the strength of the joint effect²⁷ focusing on fixed group effect (groups intercepts), interpretation that is notably consistent with obvious differences

Table 18
REGIONAL PANELS

No.	Model	Independent variables						
		LA					FDI	PF
		I	X	gi	s	p		
1	Core + Capital Flows + Macroeconomic fundamentals	**	*	**	*	*	NS	NS
2	Core + Capital Flows	**	*	**			NS	NS
3	Core + Macroeconomic fundamentals	**	*	**	NS	*		
4	Core	**	**	**				
No.	Model	EA						
		I	X	gi	s	p	FDI	PF
1	Core + Capital Flows + Macroeconomic fundamentals	**	NS	**	**	*	NS	NS
2	Core + Capital Flows	**	NS	**			NS	NS
3	Core + Macroeconomic fundamentals	**	NS	**	**	*		
4	Core	**	NS	**				

Note: * Significant at 90%. ** Significant at 99%.

Source: Author's calculations.

²⁷ According to three Dummy Least Square Dummy Variable methodologies 1st) as difference with the reference group (LSDV1); 2nd) fixed group effect (groups intercepts: LSDV2); 3rd) difference with average (LSDV3).

among countries in that respect. Larger differences within continents are interpreted as a higher degree of heterogeneity.

According to these indexes measuring differences between groups of countries East Asia is at the same time superior performer and less heterogeneous. Successful globalizers stand out while economies with a less ordered macroeconomics underperform. All sub-regions of Latin America are below the reference, especially Argentina Chile and Colombia Venezuela. All East Asia sub-regions are above all sub-regions in Latin America. Mexico, Costa Rica and Brazil are above other sub-regions, a result that points to the inclusion of Brazil as a successful globalizer.

In the model measuring fixed group effects (LSDV2, in which the parameter has the most obvi-

ous interpretation of a group intercept), with dummies by regions, the fixed effect of East Asia is higher than the Latin (6.44 versus 3.5: Table 20 reg. 1A). With dummies for sub-region, the strongest effects are observed in Singapore (7) followed by northeast Asia (6.6). In Latam, Mexico-Costa Rica and Brazil stand out (around 4 points) in comparison with the other sub-regions (Table 20 reg. 1B). With dummies for countries, the strongest effects are observed in Malaysia, Singapore, Costa Rica and Brazil (Table 19 1C), which again points to said Brazil's inclusion.

2. Summary Regional differences

Concerning the question on regional differences in engines of growth relevance, the following paragraphs summarizes the results. A stronger influence is noted by >, Latin America by LA and East Asia by EA.

Table 19
LSDV ESTIMATIONS-GROUP EFFECTS

Model	Dummy variable
1. Core	1.A. Region 1.B. Subregion 1.C. Country
	LA(3.51**) EA(6.44**) NEA(6.63**) SEA(6.2**) SN(7.08**) MX-CR(3.99**) AR-CH(2.94**) BR(4.34**) CL-VN(3.19**) AR(1.96*) BR(4.34**) CH(3.93**) CL(3.92**) CR(4.26**) MX(3.72**) VN(2.47**) IN(5.61**) KR(6.63**) ML(6.82**) SN(7.15**) TH(6.64**)
2. Core + KF	2.A. Region 2.B. Subregion 2.C. Country
	LA(3.36**) EA(6.29**) NEA(6.56**) SEA(5.96**) SN(6.21**) MX-CR(3.72**) AR-CH(2.72**) BR(4.27**) CL-VN(3.08**) AR(1.85*) BR(4.35**) CH(3.87**) CL(4.07**) CR(4.13**) MX(3.54**) VN(2.36**) IN(5.63**) KR(6.66**) ML(6.66**) SN(6.8**) TH(6.56**)
3. Core + Macroeconomics	3.A. Region 3.B. Subregion 3.C. Country
	LA(3.47**) EA(6.62**) NEA(6.75**) SEA(6.19**) SN(7.08**) MX-CR(4.06**) AR-CH(3.24**) BR(2.88**) CL-VN(3.32**) AR(2.45**) BR(2.90**) CH(3.99**) CL(4.14**) CR(4.24**) MX(3.89**) VN(2.57**) KR(6.74**) ML(6.80**) SN(7.08**) TH(6.66**)

Note: * Significant at 90%. ** Significant at 99%.

Source: Author's calculations.

Time series: In the complete model: Investment: LA>EA; Exports: LA>EA; Industrial growth: EA>LA; Inflation: LA>EA (as a negative effect, a positive effect is suggested only in EA); Savings: EA>LA; FDI: LA>EA. PF, inst, educ, do not show regional differences. In the core specification: Investment: LA>EA; Exports: LA>EA; Industrial growth: EA>LA (and the inclusion of gi affects the influence of exports more in EA).

Panel: Investment has a similar influence in EA and LA. However, while the influence of exports seems to be stronger in LA, industrial growth seems to be stronger in EA, which points to the fact that the correlation X-gi is stronger in EA than in LA. Savings has a stronger influence in EA and PF in LA.

Cross section: Productive development: Competitive Industrial Performance Index, CIPI is significant in East Asia but not in Latin America.

Convergence: Significant only in Latam and with the core and with the rate of growth specification initial GDP sign is, in accordance with the hypothesis, negative and significant, but only for the initial period (1970-90); which is not the case for East Asia where the sign is, contrary to the hypothesis, positive (with both specifications, though no significative).

Cointegration: The level of cointegration of the dynamic core g, I, X, gi is higher in East Asia both including and excluding gi.

IV. Conclusion

A. Main results

1) What are the engines of growth? Do these variables constitute a dynamic core interacting within a DIR system?: Engines of growth and dynamic core. Investment continues to play this role but the influence of exports is far less robust and is frequently superseded by gi. Time series and panel confirm the influence of investment and industrial growth and question the influence of exports. Time series does not back the influence of capital flows. Specifically, investment has a robust influence across the whole sample in the two continents, the strongest influence observed in Thailand and in the biggest economies in Latin America (Argentina, Brazil and Mexico); and exports are significant in various countries but only in terms of rate of growth, particularly Costa Rica and Malaysia. As for industrial growth the strongest influence is observed in Korea, Malaysia, Indonesia, Singapore, Chile and Costa Rica. Although in terms of pervasiveness (countries where the variable is significant) the following order is obtained $I > gi > X$. In terms of strength (magnitude of the coefficients), the order is $gi > I > X$.

g-I-X interact in a DIR system since they are cointegrated and show a double sided relationships g-I and g-X. This system seems to be more integrated in East Asia. More specifically, it is more determined by Kaldorian cumulative causation linking g-I-X (i.e. relationships among these variables are statistically

significant) in East Asia. In Latin America these links are stronger in successful globalizers Chile and Costa Rica. Concerning causality, $x \rightarrow g$ (foreign exchange for imports/learning), the effect is limited to Chile and Thailand, while endogeneity of g in Kaldorian cumulative causation fashion are more widespread: $g \rightarrow I$ (accelerator effect) in Brazil, Chile, Singapore and Indonesia and $g \rightarrow x$ (Increasing returns - productivity-) Colombia, Chile, Malaysia and Thailand.

3) *Other growth determinants*: As for macrofundamentals, capital flows, and institutional variables, domestic savings are far more important than external savings. Specifically, FDI and PF are exceptionally significant in some countries: In Singapore, the best country in the world for FDI policy design and Chile; and PF in Thailand, Argentina and Indonesia, countries which suffered severe reversions in capital flows. As for the other variables the results are also interesting: the negative influence of inflation concentrates in Chile and Costa Rica and a positive correlation consistent with East Asia characteristic profits- I nexus is observed there; institutional failure is significant in Venezuela and education in Korea and Chile. Finally, whereas competitiveness is significant in East Asia, convergence operates in Latin America and only exceptionally (initial period).

4) *Regional differences*. Investment has a similar influence in both regions, though slightly stronger in Latam. The influence of industrial growth, savings and productive development is stronger in Asia. The influence of exports is stronger in Latin

America, as well as in inflation and capital flows.

Joint effect of growth determinants upon growth is affected by location. East Asia is both higher and less heterogeneous than in Latin America. Similarly, the levels of cointegration of the variables in the core dynamic system are higher and this is more clearly determined by Kaldorian cumulative causation linking g - I - X in Asia. In effect, the dynamic structure of this process is not homogenous across the sample, but dynamic analyses (cointegration, VAR, causality tests) and panels point to differences in dynamic structure of regions, sub-regions and countries: a superior performance of East Asia and of successful globalizers over the rest as they show a cumulative causation linking I - X - g - I .

5) *Summing up in terms of the initial question on whether globalization has changed the mechanisms of growth* the answer is by and large no. Capital accumulation (I , S) and structural change towards manufacturing (g_i) continue to play the crucial role highlighted by the traditional literature on economic development. Nevertheless, despite being far less important, exports are relatively more influential in Latin America. The influence of exports and capital flows is ambiguous and it is not so clear in which region it is more important.

B. Policy Implications

1) *The role of investment and the importance of investment regimes*. The performance differences between

the two regions can be traced back to a great extent to the traditional growth engines, capital accumulation and industrialization. Latin America has lower rates of investment and, the elasticity of growth to investment is not weaker than in East Asia. That has an obvious implication: Latin America must increase that rate in order to catch up with East Asia (Table 11). As opposed to capital flows (growth to FDI and growth to PF are negligible) exports must remain a focus of economic policy since the elasticity of growth to exports is higher than economic growth to industrial growth in Latam. The relative weakness of this region vis-à-vis East Asia is not so much in terms of the volume of exports or capital flows but in terms of capital accumulation (I and S) and industrial growth (manufactured exports and its technological dynamism). A middle-of-the-way path would privilege export diversification towards more dynamic industrial sectors. As for capital flows, the results question the bias in economic policy in favor of a smooth capital account and (in terms of the impossible trilogy) against competitiveness which, given the importance of labor intensive exports such as garment, means against employment. Indeed, although capital

flows can contribute to growth, they do so in very exacting conditions concerning their stability and their effect upon the engines of growth, investment and industrial growth, i.e. their impact depends on avoiding their effect of instability of investment and Dutch Disease mechanisms against industrial growth (Table 20).

Thus the question about the conditions under which exports and capital flows fuel growth finds an answer in their link with investment and industrial growth, either because they bolster these engines or because they interact or move together with them, thanks to a structure of incentives such as the one implemented in Asia linking savings with investment and investment with manufactured exports and industrial growth. This investment regime characteristic of East Asia, aimed at techno-productive upgrading and competitiveness strengthening, comprised the whole structure of incentives at three levels: macro (fundamentals, S-I pattern including the profits-I-X nexus, stability); mezzo (investment in institutional, human and social capital, institutional compensations of market failure in the financial and technological

Table 20
ELASTICITIES TO ITS DETERMINANTS

Variable/Region	Investment	Exports	Industrial growth	Savings	Inflation	FDI	Portfolio flows
LA	0.245189	0.062195	0.049819	0.006819	-0.004240	NS	NS
EA	0.224779	0.049896	0.104056	0.008994	-0.007672	0.000965	0.000001

Source: Author's calculations.

areas); and micro (incentives for capacities accumulation at the firm level). The mezzo and micro levels are constitutive of industrial policy. The competitiveness dimension of macroeconomic policy, comprises stabilization efforts keeping balances (fiscal, commercial and payments) under control and favorable macro prices. Such control translates into low inflation rates and the healthy economic environment required for investment activity. As it was made obvious by the contrast of East Asia vs. Latin America, particularly during the 80s, a well-ordered macro economy is a condition *sine qua non* for both this activity and the amicable investment regime it requires; particularly, for said favorable macro prices, i.e. a management of rates of interest and exchange geared to competitiveness upgrading (and not only to price stabilization) characteristic of the East Asian Miracle.

2) *International integration: computer chips vs. potato chips.* Asia economies have been successful integrating themselves in the commercial/productive, technological and financial networks/flows that run the global economy. Also adjusting to the ceaseless and swift transformations in these three forms of globalization, which requires strategic flexibility. Their growth through integration into the global economy has been inherently linked to a process of capacities accumulation and productivity growth illustrating how the transfer of resources from primary to industrial production is the prototypical case of productivity growth through the shifting of resources towards higher

productivity sectors; a regularity that explains why industrial growth stands along with investment and exports as engines of growth. It profits from IR, unlike growth in primary production that operates under decreasing returns. The expression *computer chips vs. potato chips* points to the fact that even though international integration is crucial, specialization is equally important. Sectors differ in productivity growth, capacities accumulation and learning potentials, technology generation/diffusion/absorption possibilities, scope for wages and profits expansion; and thus, growth and development potential.

This important role of industrial development is related to the crucial function of capacities accumulation in the growth and development process as techno-productive upgrading acts as a powerful engine of growth. The East Asian miracle illustrates this fact and the importance of industrial policy to generate DIR effects (learning externalities, network and coordination economies) which are stronger in manufacturing. To this end carrots like rents to technology embodying investment for exports competitiveness, and sticks such as discipline as reciprocity in terms of performance, have been implemented as a long term strategy of techno-productive upgrading that promotes industries with stronger growth possibilities and productivity/technical change. This consistent and persistent pursuing of a dynamic technological path/sequence focused support on specific industries while they were moving down the learning curve

through successive import substitution + export promotion by groups of sectors (as opposed to Latin America's import substitution across the board). A development strategy that required institutional compensation of market failure, particularly in the financial and technological areas, as part of the investment regime and industrial policy that facilitated technological effort and promoted innovation.

In this direction the ability of Southeast Asian economies in avoiding the Dutch Disease and the Natural Resource Curse brought about by primary exports becomes particularly germane. When re-primarization is affecting most of the Latin economies, the ability of using foreign exchange resources as an opportunity and not a curse for long term growth, depends on adopting such a productive/export strategy, which implies reversing the mentioned bias, in terms of the impossible trilogy, which favors full integration in the international capital market over competitiveness; i.e. depends on the adoption and implementation, in accordance with the results presented here about the overwhelming importance of investment and industrial growth in comparison with capital flows, of an industrial regime amicable to productive, and particularly industrial development.

3) *Transition to a virtuous dynamics*: In successful globalizers growth, investment and exports move together (are cointegrated) in a double-sided interaction (endogeneity). The dynamics of growth and its engines seems to proceed in accordance with the DIR of the cumulative causation system $I \rightarrow \text{productivity growth} \rightarrow X \text{ competitiveness} \rightarrow \text{growth} \rightarrow I$. In this direction the answer to the initial question on whether globalization has changed the mechanisms of growth is that the DIR involving these virtuous circles ($I \rightarrow \text{productivity growth} \rightarrow X \text{ competitiveness} \rightarrow \text{growth} \rightarrow I$) continue to rule the growth process under globalization conditions.

This type of virtuous cumulative dynamics stands in sharp contrast with vicious ones in which the interaction among stagnant levels of investment, productivity growth, and so on, hold back an economy in a poverty trap. The take-off into a growth and development path requires a transition from vicious to virtuous dynamics. In this light, the problem of accelerating economic development amounts to contriving and engineering the transition from vicious to virtuous dynamics which is greatly facilitated by industrial upgrading and by an investment regime in which industrial policy plays a pivotal role.

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