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Elites and Structural Inertia in Latin America: An Introductory Note on the Political Economy of Development

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Abstract: This paper deals with the idea that the production structure and knowledge diversification define the feasible set of conditions for income distribution and elite concentration. The evidence supports the notion that a diversified knowledge structure generates and distributes rents in a more equitable way. Rents are distributed according to the different competencies (skills and capabilities) and complementarities needed to produce complex products that incorporate knowledge. A production structure based on natural resources or on cheap labor generates rent-seeking behavior reinforcing that pattern and resisting structural change. The paper shed light on the role played by these factors in Latin America.

Keywords: income distribution; elites; convergence; structure; Latin American countries

JEL Classification Codes: O15, O33, O47, O54

In the post-reform era, Latin America has reinforced its pattern of specialization in natural resources and standardized commodities and its growth rate has diverged from that of one of the most dynamic economies in recent years. Additionally, many experts and international organizations consider that the persistent income inequality that permeates the entire region is a matter to be addressed, mainly through social policy.

While it is acknowledged that innovation is ubiquitous in all processes of economic development, the importance of the interaction between innovation, production structure and income distribution process is not always recognized.

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Innovation represents a break from past familiar practices, a considerable uncertainty about how to make the new practice work effectively, a need for sophisticated learning by doing and using, and, consequently, and a process of creative accumulation and structural change.

This paper deals with the idea that the production structure and the diversification of knowledge activities define the feasible set of conditions for income distribution and elite concentration. Our starting point is the body of ideas pioneered by Prebisch and Fajnzylber on the negative effects of natural resource specialization and concentration of property rights in terms of income distribution and the balance of political power between different social groups. They assert that highly concentrated ownership of natural resources combined with a proportionally small sector of other manufacturing activities is a source of income inequality and further concentration of political power (Prebisch 1976; Fajnzylber 1990).

In fact, the relationship between structural change and economic development may be traced back to the analyses conducted by the development theory pioneers (Nurske 1953; Hirschman 1958; Gerschenkron 1962). Structural change would allow increasing returns and technological learning; and a growing share of industrial sectors in total value added would generate spillover effects, backward and forward linkages and technological externalities, and this in turn, would accelerate capital accumulation and growth. The recent literature on innovation highlights the role of technological change in shaping structural change and growth (Dosi 1988; Dosi, Pavitt and Soete 1990; Cimoli and Della Giusta1998; Ocampo 2005). Furthermore, a more complex production system requires policies capable of managing complementarities and public activities in such a way as to generate and spread knowledge (Metcalfe 1995; Cimoli *et al.* 2006b). Economies that are able to foster innovation and transform their production structure by increasing the proportion of R&D (research and development)-intensive sectors or production stages will converge on developed countries in terms of growth rates and per capita income.

By examining the sources of structural change, the paper will shed light on the role played by the elites in the structural inertia of Latin America. The evidence supports the notion that a diversified knowledge structure generates and distributes rents in a more equitable way. Rents are distributed according to the different competencies (skills and capabilities) and complementarities needed to produce complex products that incorporate knowledge. A knowledge-intensive, diversified structure regulates market power asymmetries in favor of those activities that further stimulate knowledge generation and diversification. Conversely, a production structure based on natural resources and specializing in activities that use cheap labor generates rent-seeking behavior that reinforces that pattern and resists structural change. When a small social group monopolizes this type of power distribution, there is even more reason for resistance to the implementation of policies to change the production structure. Thus, policies that promote diversification of production activities and transform production structure have to be accompanied by endogenous incentives on the part of the social groups that generate and diffuse knowledge.

The paper is organized as follows. Section one briefly describes the inconsistency of the market-efficiency approach in fostering development. Section two sets out two complementary exercises that test the importance of the production structure in growth and convergence. Section three describes the incentives driving the generation and distribution of rents in the resource and knowledge courses. The relation between elite concentration and production structure is empirically described and analyzed in the fourth section. And, the last section is devoted to the conclusion.

Market Efficiency and the Sources of Development

Many Latin American countries made significant changes to their macroeconomic policies and regulatory regimes during the 1980s. Trade and financial liberalization, the deregulation of markets and the privatization of economic activities all formed part of such programs. These were strongly influenced by the belief that the political economy of the Latin American countries must be transformed if they were to enhance their long-term growth performance, while simultaneously attaining significant welfare improvements.

The reforms were strongly influenced by the conventional "welfare-equilibrium" view. In the tradition of this approach, markets and competition are built entirely on the idea of a logical consistency between competitive markets, preference functions and adjusting variables (prices and quantities). The market is generally defined as the institution in which perfectly informed and rational utility-maximizing agents meet in order to carry out transactions. This characterization is central to resource allocation and to the selection of efficient market outcomes. Prices and factors are completely flexible and information is perfectly distributed.

This is a very appealing and politically attractive conceptual basis upon which to operate, since it implies that any institutional setting other than a fully competitive economy (full flexibility of prices and factors, and no "noise" created by government intervention in the economy) will lead to a general equilibrium that is below Pareto optimality. In such a view, any State intervention in resource allocation or institutional features that reduces price and factor flexibility will produce a misallocation of resources and hinder the achievement of a sustainable long-term equilibrium. Thus, the reforms were guided by the need for market "flexibility" and less government intervention.

Orthodox authors have argued a priori that trade liberalization and market deregulation efforts automatically plot a development path governed by market efficiency. Trade liberalization strengthens the region's comparative advantages by reallocating resources to those production activities that boost the demand for unskilled labor, narrow the wage gap and reduce the anti-export bias of the import substitution era, when the labor factor was underutilized (Krueger 1978; Williamson 1990).

Have these reforms been successful? Although a definitive assessment has yet to be made, frustration at the outcomes of the reforms seems to be spreading among both policymakers and academics in the region. Many experts are beginning to suggest

that expectations regarding the likely benefits of these reforms may have been grossly over-optimistic. Divergent paths in growth rates and per capita income are generalized facts. Persistent poverty and income inequality permeate the entire region and the weakness of the institutional setting forms a common backdrop to State interventions in different areas of the economy.

Should we be surprised by those results? The answer is no, because in the theoretical construct of welfare equilibrium, market efficiency can be attained without the promotion of either equitable distribution or convergence. The inequality in the welfare-equilibrium approach is due to the lack of assets (health, education, skills and social connections), poor returns (low wages, low agricultural prices, low output prices) and the volatility of these returns (droughts, market recessions, commodity price fluctuations) (Sen 1982; 1984). Convergence does not occur because the main sources of growth (i.e., innovation, externality, indivisibility and complementarities) are all elements that distort the approach's conceptual apparatus. However, these "interferences" with good and efficient market behavior are, in fact, sources of growth. Unless such sources are created and propagated, there is no basis on which to foster growth and a divergent growth pattern will result; in other words: "*quod nullum est, nullum producit effectum.*"

From the standpoint of welfare equilibrium, policies are promoted only "when there are market failures" of some kind and this is the departure point for most of the analysis (Cimoli *et al.* 2006b). However, albeit quite common, the "market failure" language tends to be quite misleading in that the yardstick by which it evaluates the necessity and efficacy of any policy consists of the conditions under which standard normative ("welfare") theorems hold. The problem with this framework is not the relevance of market failures. On the contrary, the problem is that hardly any empirical set-up significantly resembles the yardstick in terms of market completeness, "perfectness" of competition, knowledge possessed by economic agents, stationarity of technologies and preferences, "rationality" in decision-making, and so forth (the list is long indeed!). In a profound sense, judged by standard canons, the whole world may be seen as one huge market failure!

If we abandon the idea, for example, of the stationarity of technology and we construe technical progress as being built into product manufacturing, we can see that the economic system might be dynamically better-off (in terms of productivity, innovativeness, etc.) evolving in disequilibrium than under allocatively efficient conditions. Indeed, even when conditions under which markets work reasonably well — in terms of distribution of information, norms of interaction, and so forth — are in place, we propose that the market's role should be evaluated not only in terms of allocative efficiency (whatever that means in ever-changing economies) but also as an environment which allows continuous experimentation with new products, new production techniques and new organizational forms. All of these are sources of continuous structural changes and diffusion of those externalities that foster growth and convergence in the long term.

Given that development requires the reallocation of production factors from low-productivity to high-productivity and knowledge-intensive sectors affording

increasing returns, industrialization was seen as the way to reduce poverty. The historical evidence strongly supports the view that policies promoted the transformation of the industrial structure and its institutional setting. Indeed, all major developed countries do show relatively high degrees of intervention — whether consciously conceived as industrial policies or not — affecting all the above variables. This applied even more markedly in the period when today's developed countries were catching up with the international leader. Active government support of the catch-up process, involving various forms of protection and direct and indirect subsidies, was fundamental in countries that successfully caught up with the leaders during the nineteenth and twentieth centuries. The policy rationale for this was that domestic industries viewed as crucial to development at the time needed some form of protection from advanced firms in the leading nations. Hamilton's (1791) argument for fledgling industry protection in the new United States was virtually identical to that propounded decades later by List (1841) regarding Germany's needs. Gershenkron's (1962) famous essay documents the policies and new institutions used in Continental Europe to facilitate catch-up with the United Kingdom. The same pattern fits the case of Japan and, somewhat later, the Republic of Korea and the Taiwan Province of China.

A Cross-Country Empirical Study of Structural Change

The main point of this section is simply to establish whether the production structure is relevant or not to growth and to success in the convergence process. This section sets forth two empirical tests. The first is a panel data regression under the hypothesis of conditional convergence over the last three decades. The second exercise is a cross-country growth regression with a larger sample for the period 1990-2005.

In the panel regression, the inverse relationship between growth rate and the initial levels of per capita GDP is controlled by other variables, including: investment, human capital, industrial structure and openness. These were recovered from a sample of 29 countries and cover the period 1974-2003, which is further divided into four sub-periods: 1974-1981, 1982-1990, 1991-2000 and 2001-2003. A panel data and generalized least squares (GLS) estimation method corrected by heteroskedasticity and autocorrelation, assuming an autoregressive process of order 1, is applied and modeled with the following equation:

$$\hat{y} = \alpha + \beta y_0 + \sum_i \gamma_i Z_i + \varepsilon$$

where:

$\hat{y}$ is the average growth rate of per capita GDP in each sub-period,

y_0 is the initial per capita GDP for each period (average of the first three years of each phase, in logarithmic form);

Z_i is a vector that includes:

- investment, given as the ratio of gross domestic capital formation to GDP;
- education, measured as the percentage of the total population aged over 25 years having completed secondary school;
- industrial structure, expressed as the share of R&D-intensive manufacturing sectors in total manufacturing value added;
- openness of the economy, measured as: (exports + imports)/GDP;
- a dummy variable that captures the differences between developed and developing countries; and the error term ε.

The results are shown in Table 1. Column (2) shows the results obtained using the traditional independent variables: initial GDP, investment and education The industrial structure is aggregated in column (3); and, in columns (4) and (5), the results are controlled by another two variables: the economy's degree of openness and a dummy variable that takes the value 1 when it is a developing country and 0 otherwise. This dummy was added in order to check whether any effect for this specific group of countries had been omitted. The outcome indicates that the conditional convergence hypothesis holds and the industrial structure is highly relevant. At the same time, the other variables (initial GDP, investment, education) show the expected sign and maintain their significance along the analysis.

In the cross-country study, the sample comprises 66 countries. The study includes the same variables as the previous exercise, but the industrial structure is measured as the medium-or-high technology manufacturing value added per capita. From Table 2, it appears that the industrial structure is still relevant and its significance is maintained when another control variable was included: the past rate of growth for the period 1980-1989, which was incorporated in order to avoid biased estimator problems owing to the omission of explanatory variables.

In general, both exercises confirmed that the industrial structure is one of the main variables in explaining economic growth and those countries that have experienced structural change have attained higher growth rates and narrowed the gap with respect to developed nations. This empirical evidence supports the idea that a shift in the composition of the production structure toward R&D-intensive sectors helps to achieve higher rates of growth in the long term.

The capability to promote structural change in order to profit from new technological paradigms and expansion in demand is a key determinant of a country's economic performance in the international arena. This is mostly true in open economies, where products, production processes and sectors emerge on and disappear from the international scene very rapidly. Learning and innovation reshape international competitiveness and allow countries to exploit the opportunities of international trade and growth. Structural change promotes sectors that create and disseminate technology and facilitate the capture of opportunities arising from dynamic international demand.

Table 1. Panel Data Growth Regression

Dependent Variable: GDP per capita growth rate

Independent variables	(2)	(3)	(4)	(5)
Log GDP (initial)	-0.33*	-0.44*	-0.44*	-0.62*
	(-3.31)	(-4.96)	(-5.07)	(-4.57)
Investment	0.19*	0.17*	0.17*	0.17*
	(12.8)	(10.7)	(10.7)	(10.6)
Education	0.03*	0.03*	0.03*	0.03 *
	(3.72)	(3.45)	(3.5)	(3.33)
***Structural Index*$_1$**		**0.02***	**0.03***	**0.03***
		(2.99)	(3.28)	(3.03)
Openness			-0.002	-0.0003
			(-1.3)	(-0.17)
Dummy_Developing				-0.61
				(-1.57)
Constant	0.03	0.77	0.65	2.5***
	(0.03)	(1.07)	(0.90)	(1.82)
Observations	119	119	119	119

* significant at 1% level, ** significant at 5% level, *** significant at 10% level.

Note: Growth: average yearly growth rate, in percentages (World Development Indicators - WDI -); openness: average of exports plus imports divided by real GDP, at constant prices (Penn World Table, Version 6.2); investment: average investment as a share of GDP, both at constant prices (WDI); initial per capita GDP: real per capita GDP in constant dollars, in logarithms (WDI); education: percentage of total population over 25 years old having completed secondary school (Barro and Lee 2001). With the exception of education (where only a single year is considered), for all the other independent variables the average value of the first three years of the period was taken, in order to avoid possible outliers. The Structural index is measured as the share of the R&D intensive manufacturing sectors in total manufacturing value added (STAN Structural Analysis (OECD), United Nations Industrial Development Organization (UNIDO) and the Programa de Análisis de la Dinámica Industrial (PADI-ECLAC)).

$$Structural\ Index_1 = \frac{VA(Medium\ or\ High\ Tech)}{Total\ Manufacturing\ VA}$$

Medium and high technology manufacturing sectors are: 342 (Printing, publishing and allied industries), 351 (Manufacture of industrial chemicals), 352 (Manufacture of other chemical products), 356 (Manufacture of plastic products not elsewhere classified), 37 (Basic Metal Industries), and 38 (Manufacture of Fabricated Metal Products, Machinery and Equipment) (excluding 381, which refers to manufacture of fabricated metal products, except machinery and equipment). Numbers refer to International Standard Industrial Classification of all Economic Activities (ISIC) Revision 2. For the panel data analysis the sample covers 29 countries: Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Denmark, Finland, France, India, Ireland, Israel, Italy, Japan, the Republic of Korea, Malaysia, Mexico, New Zealand, Norway, Peru, the Philippines, Singapore, South Africa, Spain, Sweden, the United Kingdom, the United States and Uruguay.

Table 2. Cross-Country Growth Regression

Dependent Variable: GDP per capita growth rate

Independent variables	(2)	(3)	(4)
Log GDP (initial)	-2.02 *	-1.85*	-1.60*
	(-3.58)	(-2.83)	(-2.67)
Investment	0.17*	0.17*	0.12*
	(4.97)	(3.57)	(2.81)
Education	0.21*	0.22*	0.20*
	(2.94)	(3.01)	(3.44)
Structural Index$_2$	**0.75***	**0.74***	**0.58***
	(3.58)	(3.49)	(2.51)
Openness		-0.001	-0.001
		(-0.32)	(-0.55)
Dummy_Developing		0.48	0.42
		(1.11)	(1.01)
Growth 1980-1989			0.21*
			(3.16)
Constant	10.7*	9.0***	8.6***
	(2.78)	(1.88)	(1.93)
Observations	66	66	66
Adjusted R^2	0.61	0.61	0.67

* significant at 1% level, ** significant at 5% level, *** significant at 10% level.

Note: GDP per capita growth rate, initial GDP, investment, openness and the dummy are the same variables included in Table 1. However, due to available data, education was measured as the average years of school for each county. In this table, the Structural Index was constructed from the United Nations Industrial Development Organization (UNIDO) database.

$$Structural\ Index_2 = \ln\left(\frac{VA(Medium \text{ or } High\ Tech)}{Total\ Population}\right)$$

The cross-country study includes 66 countries, owing to data availability: Algeria, Argentina, Australia, Austria, Barbados, Belgium, Bolivia, Brazil, Burundi, Cameroon, Canada, the Central African Rep., Chile, China, Colombia, Costa Rica, Denmark, Ecuador, El Salvador, Finland, France, Gambia, Germany, Ghana, Greece, Guatemala, Hong Kong, Hungary, Iceland, India, Indonesia, Italy, Jamaica, Japan, the Korea Rep., Liberia, Malaysia, Mexico, the Netherlands, New Zealand, Nicaragua, Niger, Norway, Pakistan, Paraguay, Peru, the Philippines, Poland, Portugal, Senegal, Singapore, South Africa, Spain, Sudan, Sweden, Switzerland, Taiwan, Thailand, Togo, Turkey, the United Kingdom, the United States, Uruguay, and Venezuela.

Figure 1 shows a cross-country comparison between production structure (PS) and R&D expenditure, which show a strong relationship. Most of the Latin American countries, which are in cap letters, are clustered in the bottom left quadrant; in these countries, knowledge-intensive sectors typically account for a small share of the production structure and R&D expenditure is very low (around 0.5% of GDP).

Knowledge and technological capabilities are not explained by R&D efforts alone; emphasis should be on both R&D– and non-R&D–related capabilities and activities (e.g., design, engineering, innovation, management). However, a general consideration is that countries that displayed successful structural change simultaneously, featured unsurprisingly, increasing R&D expenditures. This is the typical case of Finland and the South-East Asian countries. This twofold process of shifting the composition of the production structure and raising R&D expenditures stemmed, in general, from the application of a coordinated set of long-term policies directed at the accumulation of technological capabilities. Industrial and trade polices in the Republic of Korea aimed to gradually upgrade domestic technological capabilities, and in Finland, structural change was supported by subsidies for technology-intensive activities. During their industrialization period, those countries experimented a sort of selective State intervention that helped shift the production structure toward R&D–intensive sectors (Kim 1993; Ormala 2001).

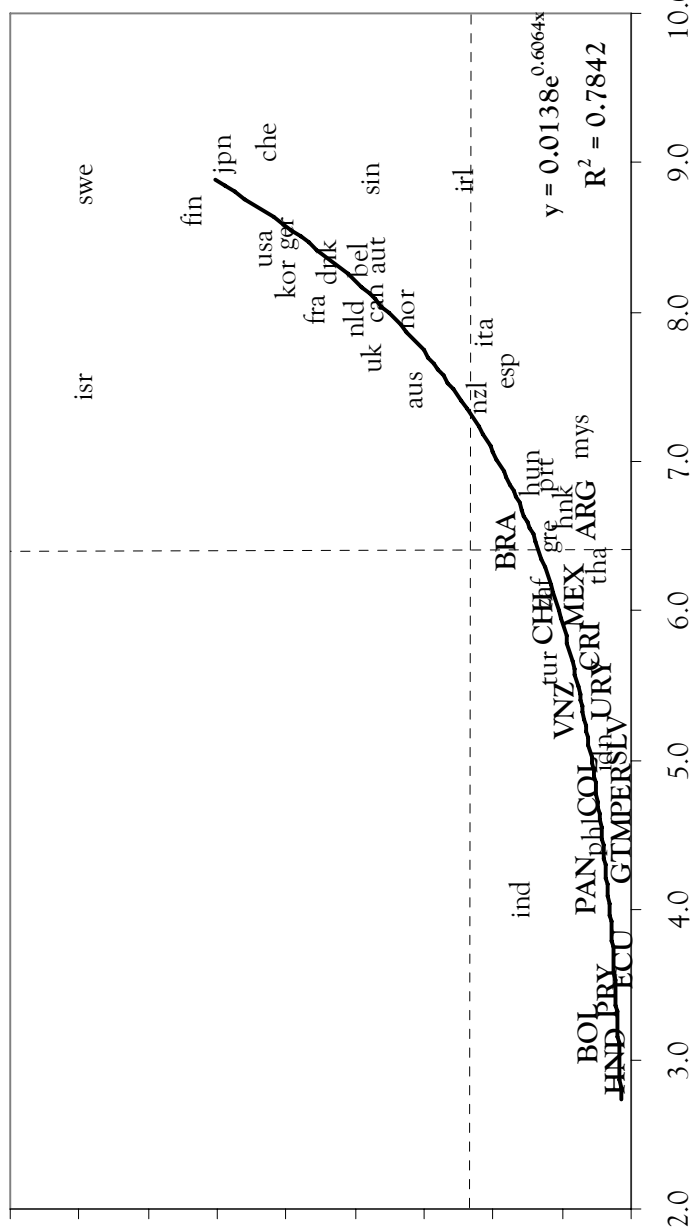
Resource and Knowledge Courses: Alternative Incentives

Countries that have experienced structural changes have moved from a specialization based exclusively on cheap labor or natural recourses to a diversified production structure with higher knowledge content. Countries that have not transformed their production structure remain anchored to their resources (Cimoli *et al.* 2006a).

The *resource course* can be mapped out on the basis of comparative advantages and access to abundant factors of production, namely natural-resource endowment or cheap labor. Geographically, two separate patterns appear to have emerged in Latin America. On the one hand, the South American countries have intensified their specialization in natural resources and standardized commodities. These are now highly capital-intensive industries with built-in technologies that are mainly imported. On the other hand, Mexico and the Central American countries have globalized their manufacturing and assembly activities on the back of relatively abundant cheap labor. Notably, however, natural resources still account for a high share of exports in this second group of countries; in Mexico, for example, oil is the largest single export earner.

Different reasons underlie the negative relationship between resource abundance and growth. According to Dutch disease models, the exploitation of natural resources and a rising exchange rate make the manufacturing sector less competitive and thus impact negatively on growth (Krugman 1987; Sach and Warner 1995). Weak institutions may foment corruption among bureaucrats and politicians and increase gains from unproductive activities, hence affecting growth negatively (Ades and Di Tella 1999; Lane and Tornell 1996; Tornell and Lane 1999). The

Figure 1. R&D and Production Structure



Sources: Industrial Development Report (2005) and UNESCO data.

resource course also impacts negatively on the income distribution process (Leamer *et al.* 1999). Production activities in natural resources are capital-intensive and the stimulus to human capital formation is weak, which impedes the emergence of knowledge intensive sectors and increases or maintain the income distribution inequity.

Even without significant efforts to propel structural change, resource abundance can sustain growth for a certain time. This is the case, in particular, when terms of trade improve, exchange-rate appreciation is controlled and sectoral productivity is rising. However, in the long term, the promotion of unproductive activities and failure to tackle income inequality tend to erode the economic benefits derived from these resources. In some cases, production linkages can form spontaneously, but in the absence of efforts to actively encourage structural change the specialization pattern is unlikely to automatically generate incentives for a shift toward more sophisticated technological production stages and activities.

Abundant natural resources or cheap labor can sustain high growth rates during a certain period without large R&D investments. However, changes in the international economy and demand patterns are likely to leave countries pursuing this strategy vulnerable because, in the long term, their capacity to capture the opportunities arising from technological progress is diminished. Specialization based purely on the relative abundance of resources leaves countries poorly equipped to frame a response to changes or shocks, since they basically lack the technological capabilities to readapt the production system to changing contexts.

The natural resource course exploits relative advantages and generates rents, which are highly concentrated and thus shape societal power distribution (Prebisch 1976). In Fajnzylber's words:

> The supply of natural resources, which in many countries is concentrated in a small proportion of the population or centralized in public enterprise, often has a negative influence on the income-distribution process. When private enterprises, either national or foreign, are concerned, resources are concentrated in a few hands; in the case of public enterprises, the rentier system may be reproduced within each enterprise, which then becomes a virtual bureaucratic feudal domain, with a considerable proportion of the rent generated staying inside the institution, in the form of wages, and benefits that are much higher than those received by other production activities. Transferring rights over those enterprises to either the private or the public sector, as the case may be, would not change this fundamental fact, which has to do more with the existence of attitudes about the accumulation of wealth than with a particular form of ownership. (Fajnzylber 1990, 78)

The resource course is based on profiting from the economic rents afforded by privileged access to abundant factors of production, namely natural resources endowment or cheap labor (Khan and Jomo 2000; Khan 2000). This pattern may be reinforced by an institutional setting that supports the extraction of unproductive rents and fails to distribute them to productive activities. Only under public policies and institutions, that stimulate complementarities between rent-seeking incentives and those activities that incorporate knowledge, is it possible to transform the production system and its specialization (Mehlum, Moene and Torvik 2006).

The *knowledge course* is plotted out on the basis of major structural transformations that alter the relative significance of different branches of economic activity as generators of both technological and organizational innovations. Each epoch appears to breed technologies whose fields of application are so broad and whose role is so crucial that patterns of technical change in each country depend to a great extent on its ability to master production /imitation/innovation in those crucial knowledge areas (e.g., in the past, mechanical engineering, electricity and electrical devices, and nowadays also information technologies).

Historical evidence strongly suggests that technological dynamism is unlikely to be self-sustaining in catching-up countries without the gradual construction of a dynamic manufacturing sector that also incorporates indigenous skills in a set of "core" technologies, learning, complementarities and productivity improvements (Dosi 1988; Cimoli and Della Giusta1998; Mowery and Nelson 1999). Collectively, institutions may be viewed as the result of a social setting that shape learning, innovative activities and skills distribution (see Hoff and Stiglitz (2001) for a more detailed discussion of this).

In the knowledge course, rents are generated and distributed in a different manner. Rents are distributed according to the different technological competencies needed to activate production and the complementarities among them. In turn, competencies are built up through a learning process, which is both local and cumulative. Local implies that the exploration and development of new techniques is likely to occur in the vicinity of the techniques already in use. Cumulative means that current technological development builds upon the experience of production and innovation. Complementarities drive rent distribution as a function of the set of competencies — capabilities and skills — that are needed to produce a new product or activate a production process.

Diversified and complex industrial structures require — and propagate — a large number of competencies, complementarities, skills and externalities across different production activities and sectors. Moreover, when rents are derived from knowledge and innovation, these must be continuously recreated as new paradigms arise and/or imitators gradually erode the innovator's dominant position. The knowledge course exploits innovation and generates rents when products and processes maximize their lead times and establish a dominant position. Innovations have to be incessantly generated and adopted in order to maintain rents. Thus, there are endogenous micro incentives to generate and propagate knowledge.

Structural Inertia and Elite Concentration

In this section, we analyze how elite concentration relates to patterns of production structure. Figure 2 shows a cross-country comparison of the relationship between the production structures (PS), measured as medium or high technology manufacturing value added per capita, and elite concentration (EC), approximated by the percentage of total income corresponding to the richest 10% of the population. Countries with a higher-knowledge content (or more engineering-intensive) industrial structure have a smaller elite concentration; i.e., a knowledge-intensive and diversified structure allows more equitable distribution.

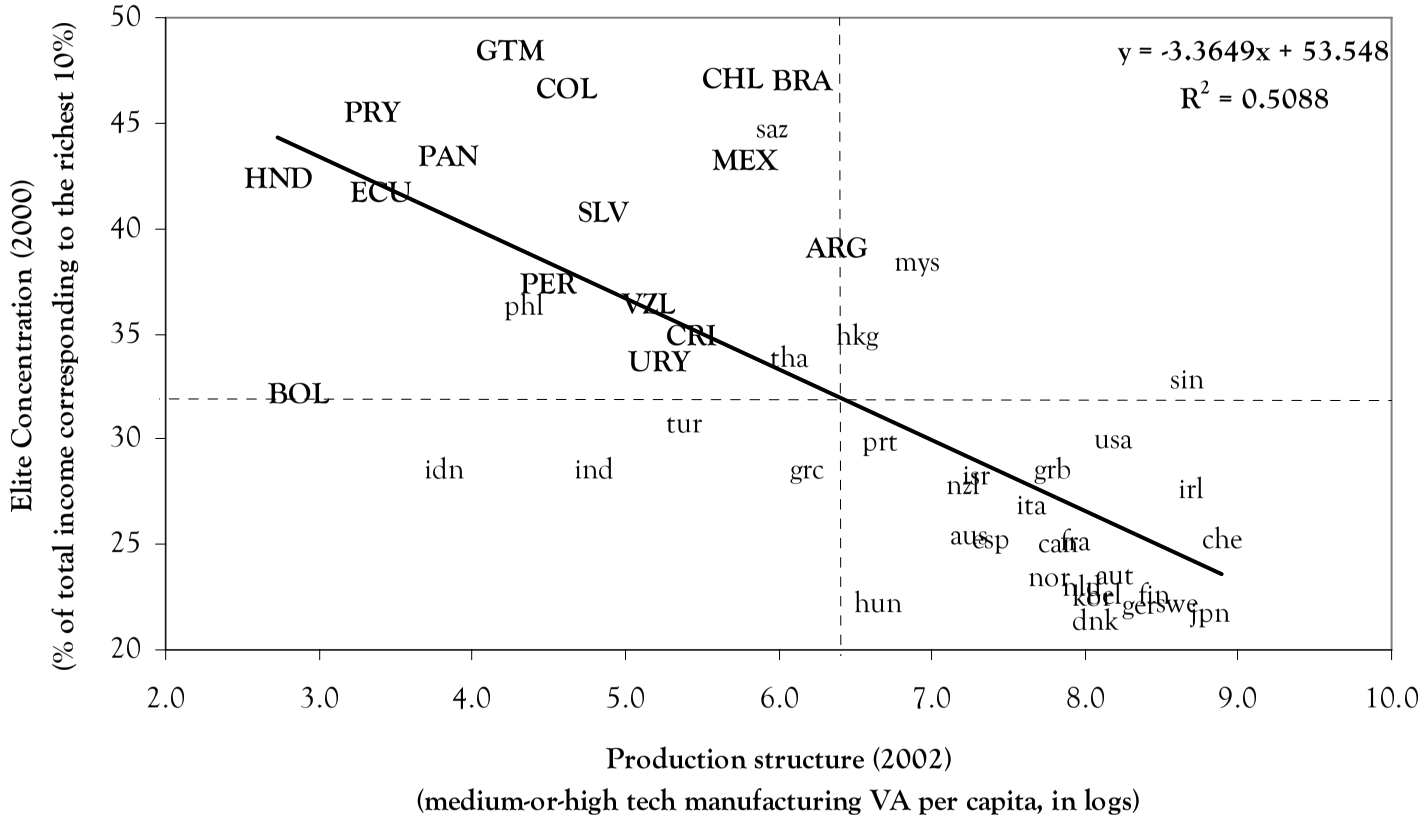
It may be noted that Latin American countries are grouped in the upper left quadrant, whereas developed nations and those at the international technological frontier figure in the bottom right quadrant. In Latin America, the resource course generates rent-seeking conducts, which co-evolve jointly and reproduce over time. This distribution of power in favor of a small social group also explains resistance to the implementation of policies aimed at changing the production structure. The countries in the bottom right quadrant show that a production structure with higher knowledge content is associated with more equitable rent distribution.

At the same time, each group of countries shows large differences in informality, education and R&D (see Table 3). The group in the bottom right quadrant exhibits a lower degree of informality, higher R&D spending as a percentage of GDP and a better education system. Conversely, countries whose production structure has a lower knowledge content display extensive informality in the economy, a lower percentage of the population completing secondary school and scarce R&D expenditures. Notably, these variables fall squarely within the field of action of public policies and financial recourses to improve them can be obtained only through a redistribution of rents.

Countries also differ in the intuitional setting (and social policies) and its redistributive effects. Unsurprisingly, the figure shows most developed countries located in the bottom right quadrant. However, a clear difference emerges between European countries and the United States, with the latter exhibiting higher elite concentration and greater income inequality. As regards Latin American countries, it is common knowledge that Brazil, Colombia, Chile and Mexico show higher inequality than other countries in the region, such as Argentina and Uruguay, which have historically implemented social policies to reduce inequality. These differences among Latin American countries are clearly depicted in the upper left quadrant.

The industrial sector's relative size within the economy is also a relevant factor. In Latin America, Brazil and Mexico have the two highest shares of value added in technology-intensive sectors. But they also have a small industrial sector relative to their population; in fact, these countries' have a low per capita value added from medium or high technology manufacturing and much of the population is employed in sectors with low technology and/or informal activities. Nevertheless, the industrial trajectories of Brazil and Mexico resulted from different strategies. In Brazil, market size and the active policies of the 1970s supported the development of quite

Figure 2. Production Structure and Elite Concentration



Source: Industrial Development Report (2005) and Human Development Report (2005).

Table 3. Main Countries Indicators (continued on following page)

Country	Elite (2000)	Structure (2002)	Informality (2000)	R&D (2000)	Education (1999)
Australia	25.4	7.23	15.3	1.57	43.6
Austria	23.5	8.18	10.20	1.88	55.0
Belgium	22.6	8.11	23.20	1.97	28.0
Canada	25.0	7.82	16.4	1.86	26.6
Denmark	21.3	8.06	18.2	2.20	46.5
Finland	22.6	8.45	18.3	3.17	47.3
France	25.1	7.92	15.3	2.18	37.3
Germany	22.1	8.34	16.3	2.51	52.3
Hungary	22.2	6.65	25.1	0.72	34.7
Ireland	27.6	8.68	15.8	1.20	44.7
Israel	28.2	7.29	21.9	3.96	33.2
Italy	26.8	7.64	27.0	1.06	32.0
Japan	21.7	8.81	11.3	2.96	47.9
Korea Rep.	22.5	8.04	27.5	2.56	49.5
Netherlands	22.9	7.97	13.0	1.95	45.4
New Zealand	27.8	7.19	12.7	1.10	26.3
Norway	23.4	7.76	19.1	1.63	62.5
Portugal	29.8	6.66	22.6	0.75	14.9
Spain	25.2	7.37	22.6	0.91	30.7
Sweden	22.2	8.59	19.1	3.96	57.2
Switzerland	25.2	8.89	8.8	2.63	55.0
United Kingdom	28.5	7.79	12.6	1.84	39.1
United States	29.9	8.17	8.8	2.66	39.6
Group 1	**24.85**	**7.90**	**17.44**	**2.05**	**41.27**

Table 3. Main Countries Indicators (continued from previous page)

Country	Elite (2000)	Structure (2002)	Informality (2000)	R&D (2000)	Education (1999)
Argentina	38.9	6.37	25.40	0.43	24.9
Bolivia	32.0	2.86	67.10	0.29	14.9
Brazil	46.9	6.15	39.8	0.90	13.5
Chile	47.0	5.70	19.8	0.53	36.0
Colombia	46.5	4.61	39.1	0.20	21.4
Costa Rica	34.8	5.42	26.2	0.33	11.3
Ecuador	41.6	3.40	34.4	0.08	18.3
El Salvador	40.6	4.85	48.0	0.08	8.8
Guatemala	48.3	4.24	51.5	0.05	9.5
Honduras	42.2	2.73	49.6	0.05	10.6
Hong Kong	34.9	6.50	16.6	0.46	47.4
Malaysia	38.4	6.89	31.1	0.37	43.0
Mexico	43.1	5.77	30.1	0.39	29.0
Panama	43.3	3.84	64.1	0.32	28.5
Paraguay	45.4	3.35	55.0	0.08	18.1
Peru	37.2	4.49	59.9	0.10	28.1
Philippines	36.3	4.33	43.4	0.20	31.4
South Africa	44.7	5.95	28.4	0.60	..
Thailand	33.8	6.05	52.6	0.24	9.3
Uruguay	33.5	5.21	51.1	0.24	32.1
Venezuela	36.3	5.15	33.6	0.37	9.7
Group 2	**40.27**	**4.95**	**41.28**	**0.30**	**22.29**

Note: Elite concentration: the percentage of total income corresponding to the 10% richest population (Human Development Report, 2005); production structure: the medium-or-high technology manufacturing value added per capita in logs (elaborated from United Nations Industrial Development Organization database); data on informality is from the International Labour Office (ILO), which defines informal economy as employment without a secure contract, benefits or social protection; R&D is defined as the R&D expenditure over GDP (UNESCO); and education measures total population over 25 years old that completed secondary school (Barro & Lee, 2001).

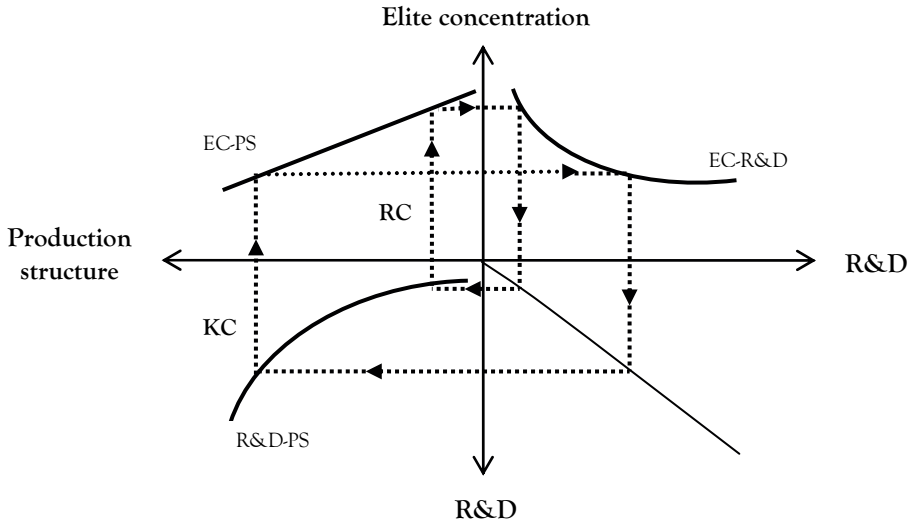
remarkable R&D-intensive industries, whereas in Mexico attraction of foreign direct investment (FDI) and integration into global productive systems, especially with the United States, was the dominant strategy. Most of Mexico's technology-intensive exports come from maquila operations where it is widely believed that, until recently, activities have consisted mainly of assembly, without significant local innovation or linkages.

In general, employment growth in the Latin American manufacturing industry slowed, and actually turned negative in the late 1980s. This is unusual in an industrializing economy. In the Republic of Korea, for example, rising productivity over the last three decades has been accompanied by employment growth in manufacturing (Kim 1993). The developed countries of today experienced the same pattern in the 1950s and 1960s (Kaldor 1966) and only later, once they had reached the technology frontier, did they see manufacturing employment fall. Besides, the "deindustrialization" typically seen in certain European countries where manufacturing employment has fallen is fundamentally different from the erosion of labor absorption capacity in Latin American industries. Unilateral market opening has transformed the dynamics of the formal sector by undermining endogenous technological capabilities, reducing the domestic production linkages and labor absorption capacity of the formal manufacturing sector, and thereby diminishing the capacity of that sector to act as a driver of development for the whole economy (Cimoli, Primi and Pugno 2006). The progressive erosion of labor absorption capacity in the formal manufacturing sector has increased unemployment and swelled the urban informal sector, which has been absorbing the surplus labor. Thus, the simultaneous existence of an outward-oriented modern sector, which consistently fails to provide enough employment and of a low-productivity informal sector accounting for a large share of jobs can also be seen as a source of the elite concentration in most Latin America countries.

Figures 1 and 2 are interpreted in Figure 3. The EC-PS line is located in the top left quadrant, while the R&D-PS line figures in the bottom left quadrant. This analysis is simply a sketch of the above findings; in fact, other variables, such as informality and education, are also important. The resource and knowledge courses (RC and KC, respectively) can be identified in the figure. For simplicity's sake, RC is defined as low R&D expenditure with a proportionally small technology-intensive sector and high elite concentration. Conversely, KC is represented as high R&D expenditure with a proportionally large technology-intensive sector and low elite concentration. The shift from RC to KC cannot be made without structural changes. An increase in R&D expenditures will trigger a movement from the left side along the R&D-PS curve, increasing the share of the technology-intensive sector in the economy and reducing the elite concentration along the curve EC-PS.

Higher R&D expenditure and a proportionally larger technology-intensive sector reduce elite concentration (EC-R&D) and alter the pattern of rent generation. The economy moves from a natural resources course to a pattern in which rents derive from knowledge generation and dissemination. At the same time, convergence requires economies capable of transforming their production structure and deriving

Figure 3. Resource and Knowledge Courses



rents from knowledge and learning activities. As part of that transformation, R&D-intensive sectors must expand to account for an increasing proportion of industry and act as a source of externalities and spillovers.

The comparison between the experience of South-East Asian and Latin American countries is revealing. In a nutshell, the Republic of Korea and other East Asian economies have been able to "twist around" absolute and relative prices and channel the resources stemming from "static" comparative advantages into the development of activities offering greater learning opportunities and demand elasticities (Amsden 1989). Moreover, they did so in ways that penalized unproductive rent-seeking behavior. In fact, the major actors in technological learning have been large business groups — chaebols — that at a very early stage of development were able to internalize skills for the selection, efficient use and adaptation of technologies acquired from abroad and, not much later, grew impressive engineering capabilities (Kim 1993). This process has been further supported by a set of institutions supporting learning, innovation and human recourses. All this sharply contrasts with the Latin American experience, in which the arrangements between State and private sector have often been more tolerant of inefficiencies and rent-accumulation and less concerned with building up socially diffused technological capabilities and skills.

In light of these considerations, why would the elites (and their institutional setting) favor structural change? Why would they ever promote active policies to increase R&D expenditure, improve the educational system and reduce informality? The transformation of the production structure to incorporate greater knowledge

across new activities reduces rent concentration. The elite would naturally resist any change that tends to reduce their share in income and narrow their power base.

The resistance of the elite also has historical roots (Furtado 1961; 1967; Engerman and Sokoloff 2005). Latin American colonialism bred extreme inequality and institutions that filtered access to economic opportunities, as well as low investment in growth-promoting factors such as education, infrastructure and technologies. After the economic reforms, elite concentration and the natural resource course jointly reinforced both the development pattern and resistance to structural change. In this context, it is no surprise that such issues as social cohesion and institutions are now figuring on the agendas of governments and international organizations. This effort may help to mitigate the effects on income distribution and welfare, but will not necessarily induce changes in the production structure unless active industrial and technological policies are incorporated in the agendas.

Conclusions

The evident lack of convergence and persistent inequality are placing a heavy burden on governments and international institutions today and are forcing them to adopt a proactive stance. The importance of production structure specialization and its relationship with income distribution is often neglected, giving way instead to a set of policies that, by definition, are less conflictive and more consensus-friendly. It is not surprising, therefore, that the policy agenda leans overwhelmingly toward social cohesion and consensus as the main route toward more equitable income distribution and a reduction in the concentration of the elite.

Economies that are able to promote structural changes, absorb new technological paradigms and increase knowledge-intensiveness have been successful in the convergence process. Achieving such a production structure has enabled them to develop a more equitable income distribution and lower the elite concentration. Here, a micro-story emerges in support of the knowledge course as a way to distribute rents more equitably as a function of the diffusion of technological competencies and their complementarities.

Development in Latin America is moving along the resource course, generating the co-evolution of a process that reinforces rent-seeking conducts and elite concentration. Resistance to the implantation of policies that change the production structure and reduce income concentration is the logical consequence of such a self-perpetuating process. This evokes and explains the structural inertia in the region. Policies that promote structural change and invoke a knowledge course have to be implemented in tandem with endogenous incentives from the social groups that generate and diffuse knowledge.

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