

Industrial success and government intervention: searching for the links

Industrialização e intervenção governamental: buscando os links

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RESUMO: A superioridade do desempenho industrial dos países do Leste Asiático, particularmente em face de seus congêneres na América Latina, teve um forte impacto sobre o debate acerca das relações entre intervenção estatal e desempenho industrial. O paradigma estruturalista foi rapidamente substituído por uma nova ortodoxia cuja receita para o sucesso é um Estado minimalista e uma economia aberta. Este artigo procura mostrar que, muito embora a abertura da economia seja um ingrediente fundamental, seu complemento não é um Estado minimalista, mas sim intervencionista. Não do tipo latino-americano, mas um que restrinja suas ações a importantes falhas de mercado.

PALAVRAS-CHAVE: Industrialização; falhas de mercado; política industrial; globalização; liberalização.

ABSTRACT: The superiority of industrial performance in East Asian countries, particularly in the face of their counterparts in Latin America, had a strong impact on the debate about the relationship between state intervention and industrial performance. The structuralist paradigm was quickly replaced by a new orthodoxy whose recipe for success is a minimalist state and an open economy. This article seeks to show that, although the opening of the economy is a fundamental ingredient, its complement is not a minimalist state, but an interventionist one. Not the Latin American type, but one that restricts its actions to major market failures.

KEYWORDS: Industrialization; Market failures; industrial policy; globalization; liberalization.
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1. INTRODUCTION

The outstanding industrial and macroeconomic performances of the East Asian newly industrialised countries (NICs) over the last three decades, have deeply af-

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fected the debate over the best strategy for a successful industrialization. The structuralist thinking, which had dominated development economics during the 1950s and 1960s, and which emphasized government intervention in the face of “structural rigidities”, was gradually replaced over the 1970s and 1980s by a new orthodoxy: the so-called neoclassical approach.

Drawing on neoclassical growth and trade models, where markets are assumed to be perfectly competitive, the new orthodoxy produced a very influential interpretation of the East Asian success, and of the relative failure of other less developed countries (LDCs). This performance differential would have been a function of the extent of government intervention, and of the trade-orientation of this intervention (trade and payment policies). Despite being quite distinct, these issues were combined in a new terminology, and given a “one-to-one correspondence”. That is, heavy intervention was equated with inward-orientation and *laissez-faire* with outward-orientation, under the categories of import-substituting (IS) and export-promotion (EP) policy regimes. The former would have been adopted by most LDCs and the latter by the East Asian NICs.

This paper aims to challenge this interpretation by arguing that this dichotomy of open-liberal versus closed-interventionist regimes is false. As even the World Bank now admits (World Bank, 1993), heavy government intervention was a fact in the great majority of the Asian NICs. The key, then, to the performance differential has to lie elsewhere. More precisely, at the different patterns of intervention in these two groups of countries. In the East Asian group, intervention was guided and disciplined by the aim of achieving international competitiveness-and therefore by the need to overcome key market failures – whereas in the other LDCs, it was largely driven by balance of payments (BP) considerations, and specially by the composition of the country’s import bill.

The following part of the paper deals with the main points of the neoclassical view, whereas the third part lays down the main arguments for an alternative explanation.

2. THE NEOCLASSICAL VIEW

As suggested, the concepts of IS and EP regimes are at the heart of the neoclassical explanation. Let us look then at their meaning and at the sort of analysis that lies behind them¹.

2.1 The IS Regime

Seen as a product of a mistaken scepticism about export-led growth and the functioning of LDC markets, IS would have prompted widespread and undue gov-

¹ The neoclassical view or “reaction”, as others prefer to call it, was pioneered by the work of Little et al. (1970). This was followed by works such as Balassa (1989), Krueger (1984, 1990, 1990c) and World Bank (1991) upon which most of this review is based.

ernment intervention in resource allocation. Protection and subsidies to the domestic industry would have led to a catalogue of problems related to industry and trade biases, distortions in the factor markets and to rent seeking.

Beginning with industry bias, Neoclassicals, backed by cross-country estimates of effective rates of protection -ERPs- (Little et al., 1970, Balassa, 1971, 1981 b), argue that intervention under IS has led to a structure of incentives with a high inter-industry variance, which diverged sharply from what would have prevailed under free trade. This would have resulted from the policy makers' neglect of factor endowments, and from their failure to consider inter-industry linkages. This "perverse" combination would have led to the promotion of industries that reflected neither the countries' static comparative advantages, nor the policy makers' initial aims.

With regard to trade bias, it is considered the regime's hallmark. As Krueger (1981:9) put it,

An import-substitution regime can be defined as one where the overall bias of incentives favours production for sale in the home market, replacing imports. (...) Formally, bias is defined as the divergence between the domestic price ratio of importables and exportables to the foreign price ratio.

As with industry, the trade bias claim is underpinned by the aforementioned ERPs estimates. This bias is regarded as resulting from high and indiscriminate import protection, which reduced the relative profitability of exports not only through tariffs and non-tariff barriers – NTBs – but also by an overvalued exchange rate (due to a demand for imports lower than it would have been under free trade).

Apart from the standard production and consumption costs of protection, the deleterious effects of such a bias are reckoned to have been twofold. First, import protection and related export discrimination would have reduced the local firms' incentives to cut costs and increase productivity, compromising their profit maximizing behaviour along the lines of Leibenstein's (1981) X-inefficiency. This would have been compounded by the limited size of the LDCs markets, which curtailed the possibilities of domestic competition, and led to monopolistic structures. In addition, the combination of restricted access to imports, exports disincentives and a limited domestic market, precluded firms from taking advantage of economies of scale and specialisation.

Second, the conjunction of import-intensive IS industries, an increasingly incompressible import bill (reflecting IS progress towards downstream industries) and sluggish exports, would have led to periodic BP crises, which damaged growth, and locked governments in a 'vicious' circle of ever stricter import controls, higher trade bias, sluggish exports and BP crises.

To make things worse, policy makers, in the process of distorting incentives, would have also tampered with factor markets, particularly with the financial sector. Interest rates would have been held below the opportunity cost to promote capital-intensive, IS industries. This would have led, *inter alia*, to capital-intensive

techniques, low savings, financial disintermediation, capital flight, and credit rationing (McKinnon, 1991). The overall result would have been a crippling resource misallocation, as evidenced by rising incremental capital-output ratios (ICORs), high domestic resource costs (DRCs) and by the high rates of unemployment and underemployment.

Finally, the new orthodoxy argues that the extensive government intervention, seen as inherent in IS regimes, would have been conducive to rent seeking behaviour (Krueger, 1974). This criticism, initially directed at import controls, was soon extended to all forms of government intervention.

2.2 The EP Regime

The EP or outward-oriented regime is seen by Neoclassicals as the commanding factor behind the East Asian success. As suggested, it is painted as the perfect antithesis of the IS regime. First, it would have been trade neutral (Balassa, 1989: 1 667), with some authors like Krueger (1985: 197) accepting the possibility of a slight bias towards exports.

This “trade-neutrality” would have been the result of low nominal import protection across the board, offset by export incentives or subsidies, and combined with a “realistic” exchange rate. Among the incentives, emphasis is given to the exporters’ freedom to choose between domestic and imported inputs, and to their access to inputs at international prices.

Second, incentives (notably export incentives) are believed to have been industry neutral, i.e., uniform among sectors and firms. They would have been provided “automatically” and would have undergone few modifications over time.

Third, almost as a corollary of the other two characteristics, intervention would have been minimal and in a functional fashion. That is, concentrated on widely accepted market failures – in markets for technology, human capital and infrastructure – without affecting the sectoral structure of the economy.

The causal mechanisms linking these characteristics with performance are mostly explained along the lines of the free-trade argument and its derivatives. This is based on the belief that incentives under the EP regime, for being industry and trade neutral, and because of the fiscal constraints, would have been a sort of second-best solution to free trade, emulating its resource allocation.

However, if one accepts Krueger’s definition of the EP regime, the case for the free-trade argument looks muddled. As Findlay (1981) pointed out, there is no clear reason for a regime biased towards exports to have emulated the free-trade allocation. Moreover, even if we accept Balassa’s definition, the question of how the ‘once and for all’ gains of a move towards a neutral regime were transformed into long-term growth, is not properly answered. Balassa (1981b), e.g., suggests that the regime’s neutral character would have allowed resource allocation to be optimized throughout the process of industrialization. This, because prices would have been free to adjust to changes in factor endowment provoked by the accumulation of physical and human capital (the so-called “stage approach”). He does not explain,

however, how optimal resource allocation resulted in higher manufacturing investment, total factor productivity and growth.

Recently, the so-called “new” growth theories have been trying to produce a more robust explanation. This is usually done by making technological change endogenous, and by giving increasing returns a growth-enhancing role. The move, then, towards an open economy would have raised growth, first, by increasing access to embodied technology at world prices, and therefore by boosting the rate of technical progress; second, by raising productivity in sectors subjected to increasing returns due to the integration to the world market; and finally, by optimizing allocation and therefore freeing resources to be allocated in research and development (Romer & Rivera-Batiz, 1991). Despite being more robust, this explanation raises other difficulties related to the increasing returns assumption. As Helpman & Krugman (1985) pointed out, with increasing returns, free trade (or free trade allocation) might not be the first-best policy. Specialization might dislocate sectors with scale economies and, therefore, reduce total income.

Apart from these growth-related allocational and technological arguments, the neutral regime is also said to have brought other less conventional behavioural, macroeconomic and ‘policy’ gains (Krueger, 1984). The behavioural gains would have stemmed from the higher import competition brought by trade liberalization. This would have eliminated the losses related to X-inefficiency and monopolistic structures.

The macroeconomic benefit, in turn, is explained by the removal of the BP constraints to growth, brought about by the end of export discrimination and by a realistic exchange rate. And finally, the ‘policy’ gain would have arisen from the fact that the reduced and neutral character of government intervention would have minimized the deadweight loss associated with rent seeking.

3. AN ALTERNATIVE VIEW

No doubt, some of the neoclassical arguments have a great deal of validity. For instance, the case of Brazil shows that export pessimism, combined with excessive mistrust of the market, produced wholesale intervention and a costly industrialization, guided largely by the country’s import bill (Moreira, 1994). Likewise, the evidence, for instance, on South Korea (e.g. Pack & Westphal, 1986, Westphal, 1990) also supports the claim that outward-orientation brought, *inter alia*, better resource allocation, economies of scale and specialisation, access to embodied technology at world prices, more competitive pressure on local firms to improve productivity, and a more stable BP and macroeconomic environment.

The problem with the neoclassical view, then, is not its assertion that trade orientation and relative prices matter, and that this explains a great deal of the performance differential. The trouble lies elsewhere. That is, in its attempt to equate trade orientation with government intervention, and to take the mixed results of inward-oriented countries as a clear indictment of any form of selective intervention.

Again, as shown by a number of studies of Taiwan (e.g., Wade, 1990) and South Korea (e.g., Amsden, 1989, World Bank, 1993 and Moreira, 1994), their policy regime were not firm, industry or trade neutral, and protection for the local industry was anything but low. In fact, intervention throughout every stage of their industrializations reached a scale that makes IS countries look like liberal economies. Studies of other East Asian NICs such as Haggard's (1990) on Singapore also point in the same direction. The exception seems to be Hong Kong (Haggard, 1990, Krueger, 1985), but then, it is just the exception, not the rule. In any event, the empirical case for the "one-to-one" relationship between intervention and trade orientation is at best weak.

When confronted with this evidence, Neoclassicals usually argue in two directions: fundamentalists contend that if selective intervention really existed, it was more of a hindrance than a help; moderates, in turn – associated with the so-called "market-friendly" approach (World Bank, 1993) – do not dispute the evidence but argue that the impact of intervention was minimal or irrelevant. The crucial factors would have been trade orientation and getting the "fundamentals" right (sound macroeconomic policies, investment in education, stable financial systems), as it would have been demonstrated by Hong Kong.

These arguments, however, neither answer the question of why generalizations were made on the basis of the exception and nor do they justify statements like "outward-orientation is incompatible with selective intervention". Moreover, the fact that they minimize any positive or relevant influence that selective intervention might have had, is mind-boggling, since it has affected the very variables that are dear to Neoclassicals. That is, relative prices, credit allocation, rates of return and market structures.

Given that, despite the neoclassical view, market imperfections and selective interventions seem to have been a fact of the East Asian industrialization, what this paper suggests is that instead of being counterproductive or ineffectual, selective interventions, except perhaps for Hong Kong, played a fundamental role in building an internationally competitive industry. This was so because interventions were factor-price conscious and were targeted at key market failures in the product and factor markets. These interventions helped these countries to benefit from the advantages of an open economy, without having to face the drawbacks of a free-trade, hands-off regime, whose neglect of market imperfections compromises the acquisition of technological capabilities, and therefore, the exploitation of dynamic comparative advantages, and the achievement of international competitiveness.

This "surgical" and selective approach to government intervention contrasted sharply with that of the Latin-American countries. There, during the first stages of industrialization, the government usually adopted a hands-off approach, overlooking the obstacles to industrial development created by market imperfections. Later on, it gradually moved towards an IS strategy, which prompted wholesale intervention. Given the lack of selectivity, some market failures were tackled more by accident than design, but the remedies were often worse than the "disease" (e.g. indiscriminate protection, negative interest rates). Moreover, indiscriminate

intervention disrupted well-functioning areas of the market, damaging resource allocation and static comparative advantages.

So, what we are saying is: all right, we agree that government intervention, alongside trade orientation, was an important factor behind the performance differential. Yet, not because it existed in Latin America and not in East Asia, but because in the latter it was selective and fine-tuned to remedy important market failures, whereas in the former, it was indiscriminate and poorly designed. Why was that so? Certainly not because of the “predatory” nature of the state, which would have been common to both group of countries. Leaving socio-political factors aside, a more plausible explanation seems to be related to the discipline imposed by the outward-oriented strategy, or in simpler terms, by the greater openness of the East Asian economies.

In a more open economy, international prices cannot be ignored and serve both as a constraint and as a guidance to intervention. In this sort of environment, the cost effectiveness (given the limitations and advantages of the country’s factor endowment) of previous and future policies becomes more evident. These policies, however, do not have to be of the functional kind advocated by Krueger and other adepts of the neoclassical view. Quite the contrary, the more open the economy is, the clearer are the relevant market failures, and accordingly, the easier it is to tackle them. And, as already noted, international prices and competition act as a safeguard against the risk of government failure.

So far, we have talked a lot about market failures but have not specified them in any detail. The requirements for efficient markets are very stringent, including perfect competition, full (and instant) diffusion and absorption of technology, perfect knowledge and foresight, no externalities, no missing or segmented markets, no transaction costs and no ‘lumpy’ (indivisible) factors. The neoclassical view accepts that these conditions are not met in the so-called “public good” cases – e.g. maintenance of law and order, infrastructure, certain forms of education and basic science–because “collective consumption” and externalities prevent the market mechanism to produce optimal results (see e.g. Krueger, 1990b).

Apart from that, there would be the classical “fair trade” (monopolies and anti-competitive behaviour), “optimal tariff” (large countries) and *infant industry* arguments, with the latter being a case of heavily qualified acceptance. Neoclassicals concede that, in this case, intervention might be needed because of capital market failures, or because returns on technology and human capital investments are not totally “appropriable”, due to externalities transmitted through imitation and labour mobility (the “appropriability” problem). Yet, they argue that the first best solution would be, in the former case, to develop the capital markets, and in the latter case, to subsidise investments in human capital and technology. In both cases, the second-best solution would be production subsidies.

Protection would not be warranted because it would only mean trading one distortion (inequality between the shadow domestic and foreign trade marginal rates of transformation) by another (inequality between the foreign trade marginal rate of transformation and the domestic rate of substitution in consumption). Thus,

there could be no way that protection would restore Pareto optimality (Johnson, 1965, Baldwin, 1969, and Corden, 1974).

The “market friendly” version of the neoclassical view admits that protection might be warranted because capital market imperfections in LDCs are rife, and budgetary considerations usually rule out the subsidy option. However, ERPs should be low (e.g. 10% to 15%), industry neutral and limited to a short period of time (e.g. five to eight years) (Balassa, 1975).

Both the “fundamentalist” and “market friendly” versions of the neoclassical view grossly underestimate the market failures that are relevant to industrialization in LDCs. It is beyond the scope of this paper to map out all of them. Instead, we will focus on those whose remedy by a selective and “pro-market” intervention, seemed to have played a key role in the East Asian success.

3.1 Market Failures in the Product Markets

Beginning with product markets, the relevant market failures seem to arise from the combination of externalities and dynamic and static factors. Let us take up each of these factors in turn.

Externalities

Externalities are actions of an individual or firm that affect another individual or firm but that are not reflected in the former’s costs or benefits. As it is well known, if externalities are present, price-taking profit-maximizing behaviour (i.e., free market) is clearly not efficient. Following Scitovsky’s (1963) classical exposition, production externalities can be divided into two categories: technological and pecuniary.

Technological externalities are defined as external effects that are not transmitted through market transactions. With regard to industrial development, the most relevant case seems to stem from the diffusion of knowledge. That is, due to labour mobility or imitation, the benefits of innovating are not entirely captured by the innovator, favouring other firms. This situation drives a wedge between social and private returns, leading to underinvestment.

The generation of technological externalities is not “industry neutral”. Industries where the competitive regime is “science-based” (Nelson & Winter, 1982)- i.e., where competition is closely linked to formal R&D and pure science – are more likely to generate externalities, and therefore to be affected by underinvestment.

The neoclassical answer to this imperfection is usually based on three types of argument: i) that these externalities are irrelevant; ii) that the first best solution would be subsidies to knowledge-generation activities; and iii) that these externalities are not country specific, and therefore cannot be used as a justification for infant industry protection².

² See e.g. Corden (1974).

Because of the obstacles involved in measuring these externalities, the first argument is not only an empirical but also a difficult question. Yet, most governments, particularly in the industrialized countries (notably the US and Japan), behave as if they were huge, distributing lavish incentives (e.g., domestic market protection, fiscal and credit subsidies and government procurement) to science-based sectors. The second argument does not allow for two vital considerations: the fiscal constraints that affect most LDCs; and the dynamic and static economies (see below) that heavily affect competition in science-based industries, making the subsidy option all the more unrealistic. And finally, the third argument is simply flawed since there is a crucial kind of knowledge- knowing how to innovate-that, due to low inter-country-labour mobility, generates external effects that are mainly country specific³.

The second type of externality – pecuniary externalities – operates through the price system. In Scitovsky's (op. cit.) formal definition, they arise whenever the profits of a firm are affected by the output and inputs levels of another firm. Since the latter's costs and benefits are not affected, this can result in over or underinvestment. Pecuniary externalities are particularly pertinent to industrial development when they are reciprocal, and the industry is subjected to increasing returns. As a number of authors pointed out (e.g., Rosenstein-Rodan, 1943, Corden 1974, and Krugman, 1993), this can lead to the so-called coordination failure. That is, the price mechanism does not signal to socially profitable investments, because it does not reflect potential reciprocal externalities.

Neoclassicals usually argue that this sort of market failure is irrelevant in the context of an open economy, given that the indivisibility problem virtually disappears. However, as Corden (1974:271) acknowledges, it remains likely to occur in the case of non-tradables, and, as demonstrated by Pack & Westphal (1986: 111), it might be relevant even to tradables given the strong interdependence between the comparative advantages of upstream and downstream industries.

This sort of imperfection calls for a government role in diffusing information and in coordinating investment decisions by the private sector. This does not imply that governments have to supplant markets as the key generators of information. Instead, it means that they have to act as an important complement.

Dynamic Economies

Market failures in the product market might also stem from dynamic economies of scale in manufacturing, associated with learning and product differentiation. The former is the classical infant industry argument mentioned earlier, and following Posner (1961 :330), it can be expressed formally as:

$$c = f \left(\int_0^t w_t Q_t . dt \right) \text{ for } \frac{dc}{dQ} < 0, w_t = \varphi (t) > 0 \text{ and } \varphi' (t) > 0;$$

where c is unit costs, Q the quantity produced, t time and w weights that are used to increase the relevancy of the recent past. This implies that first movers (fm)

³ See e.g. Krugman (1984: 111).

have a significant cost advantage over latecomers (lc), and that for the latter to succeed, its learning curve has to be steeper (assuming it is linear) than the former by an amount that is an increasing function of the gap between t and t . The degree of difficulty involved in this task is also an increasing function of the industry's technological complexity⁴.

These dynamic economies of learning arise because, contrary to the neoclassical assumption, technology is not perfectly tradable. As Pack & Westphal (1986: 108) put it, knowledge in a communicable form is quite distinct from the capability to make effective use of that form of knowledge. Thus, latecomers in order to enter any industry have to gain technological capability (i.e., the ability to use and produce knowledge effectively), which, in turn, implies investment in indigenous technological effort. This is a highly risky undertaking because:

(i) productivity gaps are usually large, and to reduce losses, results have to be produced quickly;

(ii) the lack of institutions to spread information, and the uncertainty inherent in a process of rapid development, aggravate the so-called informational imperfections (Stiglitz, 1989);

(iii) investments in technology and human capital are affected by the "appropriability" problem, noted earlier;

(iv) rapid results often require simultaneous investments by vertically linked firms (reciprocal pecuniary externalities), and as already mentioned, this is a piece of information not necessarily provided by the market;

(v) LDC firms, unlike their developed country counterparts, do no benefit from the externalities generated by a well-developed science and technology (S&T) infrastructure, or by a well-educated work force; and

(vi) constant flow of innovations by first movers, notably in "science based" industries, can constantly shift the latecomers' learning curve upwards, leading to prolonged and endless periods of losses.

The dynamic economies related to product differentiation arise from the fact that in the real world products are not homogeneous, and as Chamberlin (1933) and Joan Robinson (1933) have long pointed out, this leads to monopolistic powers. These economies were first discussed by Bain (1956), who stated that latecomers are disadvantaged because to make their product known and break the 'goodwill or preference barrier', they have either to offer their products at prices substantially lower than those of the incumbent firms or expend heavily in advertising or both. In practice, this means that on top of the higher costs related to learning, latecomers or infant industries have to bear the financial burden of breaking the "image" problem. As in the case of learning, these economies also depend on the technological characteristics of the industry, notably on the durability and complexity of the products.

⁴ For an alternative formulation, see Stiglitz (1989: 198).

Static Economies

On the static side, market failures arise basically from economies of scale, scope and internationalisation. Again, contrary to neoclassical assumptions, increasing returns are not only a fact of life but also of theory. The literature on industrial organization has long ago incorporated the existence of economies of scale, and their implication for entry, pricing and market structure. Recently, even trade theorists have done the same (e.g. Helpman & Krugman, 1985). Thus, instead of Marshallian firms with no market power, “real” industry is dominated by large firms, which benefit from scale economies that are product (greater specialisation of labour and machinery), plant (indivisibilities) and firm specific (capital-raising economies, overheads, bulk-buying of inputs and scales economies in advertising and R&D)⁵. Despite being a static concept, these economies have also a dynamic dimension for, as shown before, learning tends to increase both with scale and time (cumulative output).

The existence of scale economies (internal to the firm) also implies that incumbents are usually part of market structures, where marginal pricing means losses, and where scale related barriers to entry – e.g. high initial capital requirements and large (as a percentage of the market) minimal efficient scales (MES) – allow prices above average costs, i.e., long-term pure profits.

The second static imperfection, called economies of scope by Baumol et al. (1982), make latecomers often face not only large, but also diversified firms in the real world. This arises from

The possibility that cost savings may result from simultaneous production of several different outputs in a single enterprise, as contrasted with their production in isolation (*ibid.*, p. 71).

That is, $C(y_1, y_2) < C(y_1, 0) + C(0, y_2)$, where C is the cost function and Y ; the relevant products. Economies of scope are largely attributed to inputs that are readily shared in the production of different products. For instance, multiproduct firms can economise on management services by having a common pool of financial planners, accountants and market researchers, or they can optimise the use of machinery that is not product specific. Yet, there are also other multiproduct economies that are not linked to ‘public inputs’. For instance, the economies of risk spreading, earnings stabilization, multibrand interaction (Scherer & Ross, 1990: 122), and the advantages of cross subsidisation or internal capital markets.

Finally, economies of internationalisation imply that firms in the real world are often not only large and diversified, but also concurrently producing in several national markets. Even though it is difficult to distinguish these economies from those of scale and scope, there seems to be no doubt that internationalised firms have specific advantages stemming, *inter alia*, from: the ability to exploit factor

⁵ See Scherer & Ross (1990) for details.

price differences by spreading its manufacturing based among different countries; access to different capital markets; and intra-firm transfer of funds to minimise tax payments (see e.g. Lall & Streeten, 1977).

This all means that on top of cost disadvantages stemming from dynamic economies of learning and product differentiation, latecomers also have to come to terms with cost disadvantages and barriers associated with scale, conglomeration and internationalization. These are all imperfections that *do not depend on capital market failures*. They act by depressing the expected private returns and by magnifying the private investor's perception of risk. The "shadow" rate of return and the "shadow" risk, i.e., those that would prevail if dynamic and static economies were inexistent, would be certainly more attractive to latecomers. Accordingly, if allowed to operate freely, the market will, in all likelihood, lead to below-the-socially-optimum investment in industries where there might be dynamic comparative advantages, or even in industries where changes in factor prices suggest static advantages. In short, they preclude the smooth "stage approach" development suggested by the neoclassical view.

The Nature of the Intervention

These imperfections described above cannot be remedied by having the government acting only on coordination failures. Nor are they likely to be remedied by subsidies or by short periods of low and neutral protection. Whereas subsidies to technology and human capital investments are likely to contribute to a steeper learning curve, this still leaves entrepreneurs with the prospect of a long period of losses, given that differences in productivity are normally far from marginal, and he still faces a series of other cost disadvantages related to product differentiation, size, conglomeration and internationalisation. Moreover, since, as shown, learning is a function not only of R&D and human capital investments, but also of experience (cumulative output), if he cannot sell, the productivity gap is likely to increase instead of diminishing. As to production subsidies, even the moderate neoclassical view, as noted earlier, acknowledges that the combination of large cost disadvantages and budgetary restrictions makes the option unrealistic. The discussion of its effectiveness, therefore, seems pointless.

The option of short periods of low and neutral protection seems to be closer to a more effective intervention. Yet, it also underestimates the latecomer's cost disadvantages and overlooks the fact that the relevant market failures affect industries differently. The "new theories of trade" have already demonstrated that under certain circumstances, protection can be a powerful instrument to allow latecomers to take advantage of dynamic and static economies of scale, and therefore reduce the productivity gap⁶. The argument is straightforward. Protection provides the two elements necessary to make it possible: scale and time. Not only it makes it easier for firms to enter with plants closer to the MES, but it also allows the cumulative

⁶ For a recent review see Helpman (1990).

output to grow faster. In addition, the “new theories” have also drawn attention to the fact that the Mill-Bastable test, when applied to increasing return industries, should take into account the pure profits that might be shifted from foreign firms (Brander, 1986).

However, to be effective, protection might have to be neither brief nor neutral. Because the productivity gap can be large and the technology complex (making the learning curve flatter), a successful entry might require high levels of protection for periods longer than, e.g., the five years suggested by Balassa (1975)⁷. Moreover, there are strong reasons to grant selective instead of neutral protection. For one thing, cost disadvantages, technology and competitive regimes (and accordingly externalities and market failures) vary among industries. For another, as already argued, factor endowments and static advantages have to be taken into account. Protection of a great number of industries that are not consistent with the country’s factor endowment, can make static costs (resource misallocation and consumer loss) outweigh the dynamic benefits (exploitation of dynamic advantages, infant industry externalities, and profit shifting in oligopolistic industries). Moreover, when too many “dynamic” industries are targeted at the same time, scarce resources (physical and human capital) might be spread too thinly, compromising the process of learning. The question of which industry to protect is not necessarily a difficult one. Policymakers can follow both factor price trends and the experience of developed countries concerning industry-specific externalities.

If, on the one hand, protection should be sector-specific or sector-selective, we agree, as suggested before, that it should be trade-neutral. In fact, we would go a bit further, and say that protection should not only be combined with export incentives, but also made conditional on export performance. The need to meet stringent international standards, makes export activity an effective substitute for import competition, avoiding a situation where protected firms lack incentives to “grow up”. Moreover, in cases where static economies of scale are relevant, the pressure to export rules out plants below the MES, and the export activity in itself, for going beyond the limits of the domestic market, gives greater scope for static and dynamic scale economies to be reaped.

It is also worth noting, that in the case of imperfect competition, economic theory has already shown that under a protected domestic market, firms will maximise profits if they price discriminate, and therefore export for a price that might be lower than their average costs. Thus, in this context, protection can be a powerful incentive for latecomers to move early into export markets, irrespective of export incentives or other forms of government persuasion. It is clear that in the short-term, this strategy will inevitably increase the cost of protection for consumers, since exports are cross-subsidised by higher domestic prices. In the long-run,

⁷ As Bell et al. (1984: 115) put it, there is perhaps a fivefold to tenfold discrepancy between the duration of infancy commonly expected by the neoclassical view and the time that often appears to be needed to become internationally competitive.

though, as Westphal (1982) pointed out, the dynamic and static economies associated with greater export activity can lead to speedier reductions in unit costs and domestic prices, lowering the cumulative costs of protection, and increasing its cumulative benefits.

Besides being sector-selective and export-biased, protection should also be firm selective, in the sense that it should not benefit transnational company (TNC) affiliates. There seems to be a rare consensus in the literature, regarding the inapplicability of the infant industry argument to these firms⁸. Whereas there is no doubt that they also face a learning curve, and generate pecuniary and non-pecuniary externalities, their unrestricted access to capital, well-established brands and technology in the international market, does not make them legitimate candidates for protection. The more so because:

(i) their access to parent company technology tends to exclude the “know why” from their contribution to domestic technological capabilities (Lall, 1992b: 179);

(ii) their protection tends to harm those firms who really need to mature, i.e., the local private firms. TNC affiliates tend to share all the dynamic (learning and product differentiation) and static advantages (scale, scope and internationalisation) of their parent companies, and therefore, as far as local firms go, the barriers to entry that they impose are not that different from those of free-trade; and

(iii) foreign ownership invalidates potential welfare gains related to the “profit-shifting” argument.

Finally, protection alone is not likely to produce optimal results, because higher domestic prices might lead to excessive entry, the so-called ‘crowding in’ effect⁹. This means that even though domestic output expands, individual firms are forced to operate below the MES, and therefore prevented from taking full advantage of the dynamic and static economies of scale that protection could bring. Exports do not tend to mitigate this problem. With a fragmented and inefficient industrial structure, an early entry into the export market becomes less likely, because excessive domestic competition tends to restrain cross-subsidisation, and marginal costs are bound to be higher than export prices.

One could argue that as long as increasing returns are relevant, in the medium, long-term, restructuring will be inevitable, and the industry will assume a more sustainable configuration. This, however, would imply long and costlier periods of maturation, which could be avoided if a sustainable configuration were established right from the outset. The more so, because oligopolistic games are likely to produce drawn-out periods of restructuring, particularly if financially powerful firms, such as TNC affiliates, are major players.

⁸ See, for instance, Johnson (1965b), Westphal (1982), and Graham (1991).

⁹ This phenomenon was modelled by Horstman & Markusen (1986), who showed that the case for an import tariff/export subsidy based in increasing returns largely collapses when there is free entry and no price discrimination. See also Rodrik (1988, 1988b) for the effects of trade liberalisation on a “crowded” industrial structure.

This all suggests that, where increasing returns are relevant, protection should be accompanied by measures designed to promote sustainable configurations, preferably in the form of incentives to mergers and joint-ventures, Licensing might also be effective, but is more prone to DUP activities. Incentives to concentration are not only likely to speed up maturation, and reduce cost-disadvantages of size, but also form the basis for the establishment of local conglomerates. Large firms, given capital-raising economies, are better positioned to diversify, and therefore, capture the economies of scope, and eventually the economies of internationalisation. The former economies are particularly valuable in the context of a developing economy, where managerial resources are scarce, and where missing capital markets put a high premium on the advantages of cross-subsidisation (intra-firm capital markets).

3.2 Market Failures in the Factor Markets

So far, we have assumed that factor markets work perfectly in LDCs. This, however, is a “heroic assumption” that often leads to the neglect of crucial obstacles to a successful late industrialization. These obstacles stem from major failures in the markets for finance, human capital and technology. These failures imply that intervention in the product markets is bound to have limited success, unless factor markets are also taken into account. Here, we agree with the neoclassical principle that “interventions should attack the problem of market failure nearest to its source” (World Bank, 1987:70). For instance, the argument that protection is not likely to correct capital market failures seems to be indisputable. Protection has the specific function of helping the local private sector to overcome barriers created by the combination of dynamic and static economies. As will be shown, capital market failures in particular, and factor market failures in general, require specific measures.

The Financial Market

It is well-known that financial markets, due to informational imperfections, are likely to be imperfect even in developed countries. In LDCs, though, as Stiglitz (1989) rightly pointed out, these imperfections are severely aggravated,

Because the process of change itself leads to greater informational problems; but more importantly, the institutional framework for dealing with these capital imperfections are probably less effective because of the small scale of the firms and because the institutions for collecting, evaluating and disseminating information are less likely to be developed (ibid., p.200).

This greater uncertainty leads to greater risks, which in turn, produce at least two undesirable effects. First, a strong bias towards short-term, liquid assets, and consequently to a shortage of long-term financing. And second, a market interest rate that tends to remain above the opportunity cost or its socially optimum level.

With inadequate and expensive finance, firms have to rely on internal earnings to finance not only learning and other entry related losses, but also capacity expansion.

sion. This increases their risk in an already risky environment, and compromises their growth and competitiveness. Needless to say, that, in this scenario, expected private returns tend to stay below the social desirable, particularly for investments and activities – such as technology intensive industries and exports – that are riskier anywhere in the world, but that are likely to generate higher pecuniary and non-pecuniary externalities.

True, at a purely static theoretical level, the first best solution would be to develop institutions to disseminate information, and to promote the capital markets. Yet, in the real world, things are not that simple. Efficient capital markets require elaborate and stable secondary markets to reduce the investor's perception of risk. Elaborate secondary markets, in turn, for requiring a large number of buyers and sellers, tend to be an increasing function of *per capita* income, and therefore, of the general process of economic development. Thus, LDC policymakers who try to follow the “first best” option are bound to find themselves in a quandary. They need to develop the capital markets to boost manufacturing investment and economic development. Yet, to have a well-functioning capital market, relatively high levels of *per capita* income are necessary.

Thus, it is not surprising that late industrialised countries such as Germany and Japan, and NICs such as Korea and Taiwan, which for being latecomers could not afford to wait for a gradual development of the capital markets, have turned to what Zysman (1983) called credit-based systems. That is, the banking system replaces the capital markets as the key agent in: i) providing long-term financing; ii) centralising capital in the hands of Schumpeterian entrepreneurs; and iii) divesting them of part of the risk involved in manufacturing investment.

This system would hardly develop by market forces alone. From the banks' viewpoint, as Zysman (*ibid.*, p. 62) pointed out,

Any loan is a gamble on the future solvency of the client, but a long-term loan involves a new kind of risk. Obviously, a long-term loan cannot in reality be secured by any physical assets. Moreover, a bank gets the bulk of the money it uses from funds deposited for a short-term at the going interest rate. If it lends a firm money for five-years, during the period depositors may withdraw their funds at which point the banks' reserves drop and it must reduce loans ... Another, potentially more serious problem may occur should interest rates change in unexpected ways. If the short-term rates go down and the bank has lent long, its margin of profit increases, but if the rates go up, its profit margins are cut and it loses money.

This means that if *laissez-faire* prevails, banks would be hardly interested in granting long-term loans, particularly to investment in those manufacturing sectors where dynamic and static economies put latecomers in a very disadvantageous and risky position. From the firms' viewpoint, the fact that heavy reliance on long-term borrowing makes them extremely vulnerable to economic downturns – debt is a “fixed” cost – would in itself dampen their interest in this form of financing.

It follows, then, that credit-based systems are usually the product of government intervention, which, in order to promote the transformation of short-term savings in long-term loans, involves one or a combination of the following measures: i) incentives to joint-ownership of banks and manufacturing companies, with the aim of reducing the banks' and firms' risks of engaging in long-term borrowing; ii) subsidised credit lines (rediscount facilities and preferential loans at below-market interest rates) to cushion the risk of interest-rate and macroeconomic fluctuations, and to encourage investment in imperfection and externality-prone industries; iii) interest rate ceilings (but with positive rates) to promote investment, reduce financial costs of highly indebted firms and to control monopolistic spreads of financial institutions and; iv) direct government ownership of segments or the whole financial system.

This credit-based system has a number of advantages over the traditional capital-market option. First, it allows firms to finance learning periods and growth rates, whose capital requirements might substantially exceed their usually meagre retained earnings and securities issues. Second, the high debt-equity ratios – which inevitably characterises the system – for making both firms and banks more responsive to interest rates and preferential credit, gives the government a powerful instrument to stimulate aggregate investment (along Keynesian lines) and to force allocation of resources to those sectors where dynamic and static economies drive a wedge between the expected private and social returns. Finally, as Wade (1988:134) pointed out, the credit-based system helps to avoid the “short-termism” that affects decision-making in a stock market system.

On the minus side, there is no doubt that this system is more vulnerable to financial instability, DUP activities and government failure, due to the high debt-equity ratios and the usually prominent role of preferential credit. Yet, if, as in the case of product markets, government intervention is selective, factor-price conscious and made under the discipline of an outward-oriented regime, the advantages are likely to outweigh the benefits, as suggested by the cases of the countries mentioned above. Moreover, the alternative, as noted earlier, is not the “textbook” capital market, but a tale of constant shortage of long-term financing, unduly high interest rates, undercapitalised firms and missed investment opportunities. Or even worse, the combination of an underdeveloped capital market with a traditional banking system (i.e. specialised in short-term lending) can produce, as the case of Brazil shows (Moreira, 1994), uncontrollable inflationary pressures, given the firms excessive reliance on internal earnings.

It is also noteworthy that there is nothing inherent in a credit-based system, and in the greater government intervention that it normally requires, that necessarily leads to “financial repression”, i.e., to an atrophied financial system, incapable of performing properly the role of transferring savings to investors. The frequent occurrence of this problem among LDCs with interventionist regimes, led some authors (see e.g. McKinnon, 1991) to see it as a clear indictment of any form of intervention in the financial markets (except for the traditional regulatory role). Yet, a closer look at its causes shows that it arises mainly from negative interest rates

and high inflation, normally a product of non-economic interventions (e.g. usury laws) and unsound monetary policies. They are not necessary conditions for the good-functioning of the credit-based system. The cases of Korea and Taiwan, which have undergone rapid financial deepening prove this point¹⁰.

Human Capital and Technology Markets

As suggested earlier, Neoclassicals admit that markets for human capital and technology are defective. Yet, until quite recently, the role of government in overcoming these “functional” imperfections was hardly mentioned in their explanation of the East Asian NICs success¹¹. Even though a well-educated and trained work-force is not a sufficient condition for successful industrialization, it provides, as Lall (1992a:28) put it, the ‘absorptive base’ on which industrial skills can be created. The larger and qualified the absorptive base, the shorter will probably be the maturation period, and accordingly the lower the learning costs. Investments in education and training, however, are not efficiently allocated by the markets due to externalities and capital market failures.

From the labour’s perspective, the rate at which future returns on education and training are discounted, tends to be higher than the social optimum, because the benefits they generate for the economy as a whole- for not being “appropriate”- are not taken into account, and information imperfections can lead to ignorance, excessive risk aversion and, therefore, to myopic expectations. Moreover, even if there were perfect foresight and no externalities, labour would tend to under-invest, for capital markets, as Corden (1974:249) admitted, “are not usually well organised for such purposes”.

From the firms’ viewpoint, investments in training and formal education of their employees, as noted earlier, are hindered by the “appropriability” problem. Labour mobility gives rise to externalities, and therefore to under-investment.

It is clear, then, that countries where the government intervenes and invests heavily in education and training are bound to have a better educated and trained work-force, and accordingly, their industry more likely to achieve international competitiveness faster and at lower costs. Thus, the sharp contrast between East Asian and non-East Asian NICs’ experiences with education and training, with the latter largely neglecting its relevance and the former pouring significant resources, cannot be left out of the explanation of the performance differential¹².

On the technology market, we have already pointed out that, contrary to the neoclassical assumption, technology is not perfectly tradable. Whereas knowledge might be tradable, the capacity to make efficient use and to produce knowledge is not. Moreover, the market for the tradable elements of technology – via e.g. licens-

¹⁰ As of 1980, the ratio of M_3 to GNP in Korea, Taiwan and Brazil were 0,33, 0,75 and 0,17 respectively (McKinnon, 1991: 14)

¹¹ The last World Bank Report (1993), adept of the so-called market friendly view, corrects this deficiency.

¹² For details see Lall (1992b).

ing agreements and FDI – is far from perfectly competitive, due to asymmetric information between buyers and sellers (Arrow, 1969), and to sellers' concentration. The result is that the trade of technology often involves prices above marginal cost, and restrictive practices such as export restrictions.

It follows, then, that investments in domestic technological effort, as Pack & Westphal (1986:109) argued, are bound to generate “surpluses for those undertaking the investments or for other beneficiaries”. The investors' surplus might stem from the acquisition of technological capability, which, in turn, might enhance their position in both product and technology markets. In the product markets, the acquisition of industrial skills is likely to speed up learning, reduce costs and improve quality, allowing greater market penetration, and even economic profits if investors manage to innovate. In the technology market, greater technological capability is likely to reduce informational asymmetries and therefore strengthen the investor's bargaining power over technology acquisitions.

The other beneficiaries' surplus, i.e., externalities, can be pecuniary and non-pecuniary. The former includes easier and cheaper access to technology (via local transfer of technology or technical consultancy) and products with a set of characteristics more appropriate to local factor endowment. At a macroeconomic level, greater technological capability might: reduce the BP costs of technological licensing (including restrictive practices); increase the private sector ability to respond to relative prices and explore dynamic advantages; reduce the cost of protecting infant industries due to speedier learning; and boost growth by speeding up technical progress. The non-pecuniary externalities consist mainly of the diffusion of knowledge through labour mobility and other channels.

The existence of these externalities implies that the private discount rate regarding investments in technological effort is bound to be higher than the social optimum, and therefore under-investment will follow. Moreover, as mentioned before, imperfect information, a precarious S&T infrastructure, R&D indivisibilities, and the latecomer's dynamic disadvantages, all conspire to make domestic technological effort highly risky. The more so, because it tends to be seen as a dearer and riskier alternative to activities such as FDI and technology licensing, whose long-term and subtler disadvantages – e.g. truncation of technology transfer, monopolistic prices, restrictive practices – are usually overshadowed by short-term benefits such as reduced risk and quick results.

This all means that countries, such as the East Asian NICs, where governments, in the course of industrialization, intervene to promote investment in domestic technological effort, and to redress the private sector's perception of the pros and cons of technology imports – *via*, e.g. fiscal incentives to R&D, investments in the S&T infrastructure, selective FDI and technology licensing restrictions – are likely to acquire technological capabilities faster, and therefore, to achieve and maintain international competitiveness quicker and at lower costs.

4. CONCLUSION

All things considered, it seems dear that even though Neoclassicals are correct about the role of trade orientation in the East Asian success, they are wrong to equate outward-orientation with a Jack of state intervention. Without taking into account the role of the government in overcoming market failures, the success of outward-oriented countries, and accordingly the relative failure of those who looked inwards, cannot be properly understood. Both product and factor markets in LDCs are affected by important imperfections, which outward-orientation or “keeping the fundamentals right”, by themselves, are not likely to remedy, and that free-trade and inward-orientation are likely to aggravate. Outward-orientation, though, is important and necessary, not only because it brings the benefits of an open economy, but also because it guides and disciplines governments towards selective interventions, designed to remedy specific failures, or to make the best use of irreparable imperfections.

This alternative approach carries a view of the state that is neither the “perfect state” of the structuralists, nor the “predatory” state of the Neoclassicals. Here we cannot but agree with Pack & Westphal (1986:104),

A government’s ability to intervene selectively in pursuit of dynamic efficiency cannot be taken for granted. Indeed, most governments may lack this ability. But it appears to be a critical factor in using selective intervention to achieve faster and more successful industrialization. Hence, where this ability does not exist, the government is probably well advised to adhere rather closely to the strict neoclassical prescription for a neutral policy regime.

However, where the government’s ability to intervene does exist, that is, where the state is not handicapped by widespread corruption and ill-qualified ministers and civil servants, the costs of non-intervention are likely to outweigh eventual government failures. In this case, the question to ask is not intervention or non-intervention, but how and where to intervene, and under what sort of incentive regime intervention is more likely to be successful.

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