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GUIDELINES FOR INDUSTRIAL RECONVERSION AND RESTRUCTURING (with Application to Uruguay)

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ABSTRACT

This paper seeks to contribute to a more informed public discussion of the issues involved in industrial reconversion and industrial restructuring in developing countries, and makes special reference to recent efforts along those lines in Uruguay. It lists ten questions that might be raised and, after consideration of them, offers a series of recommendations and a conclusion that maintains that restructuring is a process involving social interaction, and thus that it can benefit by incorporating into the economic analysis elements from other behavioral social sciences. The discussion emphasizes the importance of often overlooked microeconomic policies in achieving reconversion/restructuring, reviews alternative concepts of restructuring, outlines the current debate on the determinants of dynamic competitive advantage and the techniques of gauging international competitiveness, and considers policies beyond trade liberalization to promote increased industrial productivity and industrial competitiveness.

RESUMEN

El presente trabajo busca contribuir a una discusión pública mejor informada sobre la reconversión y reestructuración industrial en los países en desarrollo, y hace referencia especial a los esfuerzos recientes en Uruguay. Hace una lista de diez preguntas que podrían ser planteadas y, después de considerarlas, ofrece una serie de recomendaciones y una conclusión que sostiene que la reestructuración es un proceso de interacción social y que, por eso, se puede beneficiar incorporando al análisis económico elementos de otras ciencias del comportamiento social. La discusión enfatiza la importancia de las políticas microeconómicas, que muchas veces han sido descuidadas, para alcanzar la reconversión y reestructuración, revisa los conceptos alternativos de reestructuración, esboza el debate actual sobre los determinantes de las ventajas competitivas dinámicas y las técnicas de medición de la competitividad internacional, y toma en cuenta las políticas que, más allá de la liberalización comercial, pueden promover aumentos en la productividad y la competitividad industriales.

I. Introduction

A. General Considerations

This paper deals with considerations that are relevant for industrial reconversion and restructuring in all developing countries, but since the analysis has been influenced by the experience of Uruguay, it begins with a brief background on that economy. (Those readers who would prefer to concentrate on the general issues might prefer to skip the next four paragraphs as well as all of Section IB. Other sections also contain references to Uruguay, but are of fairly general applicability.)

Uruguay is one of the most civilized, livable countries in Latin America, perhaps in the world—provided that one is not in too much of a hurry to get things done. It has a long-standing social welfare tradition, though one which is by now more than somewhat frayed at the edges. The people tend to be conservative—those of the left as well as the right. While they certainly do not always agree with one another, Uruguayans from differing groups reveal considerable mutual respect—much more than one finds just across the river in Argentina. The populace places a high value on freedom of individual expression and a much lower value on discipline. The latter shows up in many ways, including an extraordinary degree of political factionalism, which often results in legislative stalemate.

Uruguay's natural resources, aided by immigration and investment from abroad, enabled the country to become one of the dozen or so wealthiest in the world in per capita income during the second quarter of the 20th century, with an educational system that eclipsed those of some European countries. Neither is even remotely the case today. The relative decline of a nation that had so much going for it has led to many analyses and proposals for change. The most recent of these came with the election in 1989 of a minority, right-of-center government, committed to greater macroeconomic stability, increased economic liberalism, and a reduced government interventionism not ordinarily associated with Uruguay.

The recent economic experience was marked by a substantial boom in 1986–1987, paced by an industrial sector that took advantage of underutilized capacity and preferential trade agreements. The expansion failed to return the country to the per capita income levels of 1980, however, and was not accompanied by much new investment. It was followed by two years of economic stagnation particularly in the industrial sector. The period 1990–1993 was to witness an improvement in overall economic performance (spurred in part by the extraordinary overvaluation of the currency in neighboring Argentina), but a decline in manufacturing industry, small at first,

but of considerable magnitude since early 1993, as the scheduled reduction of import barriers led to greatly increased competition from abroad.

Few topics have been mentioned more often in Uruguay during the last few years than industrial reconversion—the need for it, and the steps being taken to achieve it, or the lack thereof. Yet there are a number of questions about industrial reconversion or restructuring that have not been resolved, and are of interest well beyond Uruguay.

First, what exactly is meant by the phrase 'industrial reconversion' or 'industrial restructuring?' Indeed, is there a unique meaning?

Second, while no one would deny that economics has well-developed principles of resource allocation that apply to a point in time, are there comparably clear guidelines that apply to a process—in particular, to the process of industrial reconversion?

Third, insofar as industrial reconversion and restructuring involve a movement toward an economy that is more efficient and competitive, does that mean that it should be characterized by what we have understood as activities endowed with comparative advantage?

Fourth, is it sufficient to determine the policies and measures most indicated to attain industrial restructuring—not that that would be such an easy task, but would it be enough?

Fifth, how important is it to estimate the current competitiveness and efficiency of industrial activities?

Sixth, while increases in productivity may be essential to industrial restructuring, is new investment the key to such productivity increases?

Seventh, what can be said of the so-called obstacles or bottlenecks to industrial development?

Eighth, will increased opening of an economy—increased liberalization—assure the increased competition sought, at least if it is coupled with the deregulation and increased privatization of state enterprises?

Ninth, to what extent should considerations of equity be taken into account in programs of reconversion, and, to what extent are such considerations a precondition for the continuation of the programs?

Tenth, to what extent do institutions either facilitate or circumscribe industrial restructuring, and how much of that reflects cultural values not easily modified?

This paper seeks to contribute to a more informed public discussion of the points at issue and outlines what is required or should be considered to ensure the restructuring of an industrial sector in terms that are economically sound. In the process, reference is made to some developments that have been taking place in Uruguay.

First, a caveat; no restructuring of industry would be optimal unless it were part of an overall economic restructuring. Moreover, while it would be conceptually desirable to take account of all of the interrelationships of adjustments between as well as within sectors—and that is not feasible—at least some account should be taken of what appear to be major interactions. Similarly, while the sequence of public and private measures is probably important to the results achieved, it must be acknowledged that we still do not know very much about optimal policy sequences for anything as complex as an industrial restructuring; we should simply try to reason out plausibly effective sequences, taking enough notes along the way so as to learn from experience which ones seem to be relatively efficient in attaining the desired objectives.

Second, it is hard to envision the efficient restructuring of industry in the absence of macroeconomic stability and favorable conditions for at least medium-term economic growth. Much has been written on these topics, however, and there is no lack of guidelines, particularly when it comes to what is required for short-term macroeconomic stability. A few comments, however. First, although it is generally assumed that sound macroeconomic policies are a necessary condition for efficient industrial development, perhaps it needs to be repeated that they are not a sufficient condition. The adoption of sound macroeconomic policies is not likely to ensure optimal microeconomic results; the implementation of the appropriate industrial policy should not await the attainment of substantial success in macroeconomic objectives, lest growth falter and the macroeconomic gains themselves endangered. Microeconomic measures should accompany the macroeconomic changes, and some micro adjustments might even precede the macro measures. The optimal timing may well depend upon the nature of the respective measures, the type and magnitude of the economic shifts sought, and the probable behavioral responses of the key economic actors in the particular circumstances in question. Moreover, macroeconomic policies may not be neutral with respect to the allocation of resources. If policies with known (even though temporary) adverse impacts on comparative advantage activities were proposed (such as would be the case with an economic shock program), then anticipatory or offsetting implementation of some microeconomic measures might be essential to the success of the proposed policy changes. This is in addition to the general argument that microeconomic measures and structural change should accompany macroeconomic policy changes.

The remainder or the paper is as follows: Section I.B. discusses the local context of industrial reconversion. Section II deals with the alternative concepts of industrial reconversion and restructuring. Section III examines the current status of the theory of comparative advantage and its implications for industrial restructuring. Section IV discusses means of gauging international competitiveness. Section V considers the case for policies to promote competition.

Section VI deals with the means of increasing industrial productivity. Section VII provides brief comments on three topics: 1) institutions and their role in facilitating or inhibiting the restructuring of industry; 2) privatization and deregulation; and 3) considerations of equity in the process of industrial reconversion. Finally, Section VIII brings together the principal conclusions in a set of guidelines for industrial reconversion and restructuring.

B. The Local Context

The acceleration of Argentine and Brazilian plans for a common market in July 1990 awakened Uruguayans to consider the economic competitiveness of domestic economic activities more than perhaps any other event in recent decades. This event and the widespread (though frequently resigned rather than enthusiastic) support for a common market with Brazil, Argentina, and Paraguay, quickly raised questions about the need to make economic changes. The reconversion, or more fundamentally, restructuring of industry was often mentioned. The continuation of earlier commitments to even out and reduce tariffs and other trade barriers to the world at large reinforced the concern, especially inasmuch as the reductions were beginning to get to the level at which a larger number of domestic producers were feeling increased competition from abroad. That increased competition was accentuated by the appreciation of the Uruguayan peso, particularly with respect to the dollar.

Prominent government spokesmen indicated their expectation that some industries would sustain adversities, and they emphasized the need for industrial restructuring. The government's specific actions to shape the new structure of industry were somewhat limited. For the most part, it expected that a reduced fiscal deficit, reduced inflation, a reduced role for state enterprises in manufacturing activities (and a reduced role for the state generally), together with a reduction in bureaucratic intervention, would lead to an efficient restructuring of industry based on the maximizing response of private enterprise to market signals. The only troubling part of all of this, in terms of the implementation of an essentially neoliberal economic philosophy, is that some key members of the government had been and continue to be skeptical of the responsiveness of many producers to economic incentives.[1] Perhaps because of that, or perhaps for other more basic concerns, the government undertook two additional measures.

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[1] For an analysis of this topic see Hugh Schwartz, "Entrepreneurial Response to Economic Liberalization and Integration: An Inquiry about Recent Events in Uruguay Aimed at Developing Better Hypotheses about Economic Behavior," Kellogg Institute Working Paper Series #208, April 1994.

First, the government concluded negotiations for several projects to support components of economic infrastructure, most notably in the area of science and technology; such activity would be likely to influence the restructuring of industry, as would its support for the industrial testing and technological assistance activities of a norms and adapted technology laboratory (LATU), without resorting to the much riskier business of determining which individual industries were likely to be 'winners' or 'losers.' Second, the government has taken some steps toward establishing a 'safety net' for those adversely affected by the restructuring.

The government has moved on a smaller scale to provide analyses of what specifically might be necessary to effect changes in individual industries, and much of the limited support that was extended to help enterprises help themselves was restricted to small- and medium-size enterprises. Unfortunately, size has been defined traditionally, in terms of sales, assets, or the number of employees, rather than in terms of some economic criterion such as the size facility necessary to achieve (or come within, say, five percent of achieving) maximum economies of scale and thus be in a better position to compete internationally. Both in the government and in the private sector most of the analyses that have been undertaken focus on the recent competitiveness of existing Uruguayan industries, many of which never aimed at more than the local market. The studies do not consider whether or not it might be profitable to transform those activities into internationally (or regionally) competitive ventures, which is the more relevant question. For some currently uncompetitive activities the prospects may be good, while for others they may be quite poor.

Finally, the extreme political factionalism of Uruguay has meant that the signals provided by government have sometimes been blurred. The 'market' approach of the principal wing of the governing party has been subject to a great deal of dissent even within its own ranks. There is further questioning as to how many of the current policies will endure beyond the 1994 elections—though it is certainly recognized that the days of a highly protected economy have ended.

In the period between August and October 1990, it seemed like the private sector was about to launch a major response to the new challenges. Many multinationals and several of the larger Uruguayan-owned companies made major changes in their plans, specializing to a greater extent than formerly, taking additional measures to increase productivity, and in a few cases, undertaking substantial new investments. But in many cases, much less was done. In part, this reflected doubts about the likelihood of achieving the proposed economic integration or of achieving it before the turn of the century, doubts that increased as Argentina's situation seemed to become more fragile and Brazil's troubles mounted. In part, the hesitating response of some

Uruguayan producers reflected a feeling of hopelessness with respect to the possibilities of competing with large Brazilian or Argentine competitors, a reaction that was accentuated by an incomplete awareness of what could be done to increase the efficiency of existing facilities and of whom they might turn to for advice on reconversion. Some sought out firms in Argentina and Brazil to see if the latter might be interested in acquiring their plants; or they began to consider abandoning manufacturing and becoming distributors of imports, reversing the process that they or their fathers had initiated a generation before. The age of many owner-managers and the traditional conservatism of Uruguayans (especially after the adversities brought on by the sharp and presumably unexpected devaluation of 1982) contributed to the lack of an aggressive stance. This may have been abetted by signals from the government, which spoke of the need for industrial reconversion, but did not press the point with the emphasis given to short-term macroeconomic objectives, and which, in any event, did not move very rapidly to reduce the cost of government services such as electricity and fuel that provided much-sought revenues but kept the price of such inputs higher than in neighboring countries. (Some investment or export incentives were reduced, though perhaps more to raise revenues than to improve the efficiency of economic signals.) Organized labor was becoming increasingly aware of the threat to its ranks posed by the common market with Argentina, Brazil, and Paraguay (Mercosur) and the on-going reductions of industrial protection. There was greater recognition of the need to increase productivity to save some jobs in the long run, but the public declarations of the labor confederation leadership continued to emphasize the traditional concerns with improving wage levels and maintaining acquired rights. Except for the economic advisor, the public statements of labor rarely took note of productivity considerations and never stressed the importance of increased public education, so important to a restructured industrial sector and especially to one that would include a substantial and better-paid work force. Moreover, the inclination of organized labor to continue to take political stances was reaffirmed and then accentuated by a short-lived effort to circumscribe the right to strike, and in late 1991–1992, by the government's adoption of guidelines for wage increases that would have entailed substantial declines in real wages, especially in the public sector.

II. The Alternative Concepts of Industrial Restructuring

Economics has clear, unquestioned principles for the allocation of resources at a point in time. Are there principles that are comparably agreed-upon for an optimal restructuring of industry? Note that the objective is not to obtain the structure that would have been optimal at this

point in time if all of the policies and decisions in the past had been efficient, nor the structure that would be optimal at this point in time allowing for any errors or inefficiencies of the past. Rather, the question is what, given the results that reflect the shortcomings of the past, would be the optimal structure of industry for some point in the future (or the closest to an optimal structure that is feasible given the uncertainties and information-processing problems), and what does an economy have to do to obtain that structure?

Industrial restructuring is a process, so it is necessary to take account not only of the resource allocation sought and the measures to attain that allocation, but also the optimal manner and sequence of introducing those measures. The latter, in turn, is likely to depend upon the behavior of economic agents, on the degree to which their objectives approach cost minimization/profit maximization, on the degree to which economic agents perceive the signals of the new economic realities correctly, and on the degree to which they analyze the data they perceive by means of optimizing techniques (an admirable norm) or judgmental heuristics (essentially rules of thumb), which cognitive psychologists have shown are much easier to handle and much more prevalent; the latter lead to results which, while generally in the correct direction, are biased from those of optimizing techniques.[1]

The disappointments with the liberalization experiences in the Southern Cone in the late 1970s led to a recognition of the importance of sequencing (see, e.g., the studies by Sebastian Edwards), but much of that literature assumes a high degree of rationality in the traditional sense of economics, a kind of rationality that is at odds with recent findings on the border of psychology and economics, as well as a lack of attention to institutional and cultural factors that might condition the optimal sequence. To the degree that these latter factors and the governance mechanisms they have generated impede a rapid and efficient response, it may be necessary to attempt to alter the noneconomic (or not-strictly-economic) factors, or alternatively, to design measures and to 'frame' or expound them suitably, as well as to design implementation sequences which take the institutions et al. into account. Shock policies sometimes succeed in shortcutting this onerous task, but they have not always worked and are less likely to do so in societies that are disinclined to tie the hands of dissident economic groups. Nor is it merely optimal framing,

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[1] The key reference is Daniel Kahneman, Paul Slovic, and Amos Tversky (eds.), *Judgment Under Uncertainty* (Cambridge, Cambridge University Press, 1982). For an application, see Hugh Schwartz "Perception, Judgment and Motivation in Business Firms: Findings and Preliminary Hypotheses from In-Depth Interviews," *Journal of Economic Behavior and Organization,* December 1987. More generally, see Peter J. Earl, "Psychology and Economics: A Survey," *The Economic Journal,* September 1990. If some readers find this discussion objectionable, it should be noted that very little of what follows is dependent upon accepting the conclusions of this paragraph.

sequencing, and implementation that are at issue. Differences in institutional, cultural, and behavioral factors also could influence the optimal mix of policy measures. Indeed, the revised thinking about the extraordinary Asian economic successes is devoting much more attention to the other-than-strictly-economic factors, in part to explain why the successes were quite so great, but also to explain why so many of the characteristics of the exported growth differed from one country to another, with the most spectacular success of all, that of Korea, departing most significantly from the presumably neoliberal paradigm of recent East Asian growth.[1]

[1] For a largely revisionist view of the East Asian successes, see the April 1988 Special Supplement issue of *Economic Development and Cultural Change.* For an analysis of the Korean phenomenon, see Alice Amsden, *Asia's Next Giant: South Korea and Late Industrialization* (New York: Oxford University Press, 1989). On the other hand, Kwan Kim dismisses the importance of cultural factors (such as Confucianism) in explaining Korea's success. See Kim, "The Korean Miracle (1962–1980) Revisited: Myths and Realities in Strategy and Development," Kellogg Institute Working Paper Series #166, November 1991. Nonetheless, Kim attributes an important role in Korea's success to the interaction between government and the market, which may well be due in considerable measure to Korean institutions and aspects of Korean culture—institutions and cultural factors very different from those in much of Latin America, for example.

During the last 20 years the phrase ‘industrial restructuring’ has been employed in at least four senses in developing countries.

First, industrial restructuring has been used to refer to an objective of establishing in the developing countries industrial structures similar to those found in successful advanced economies, even with comparable patterns of exports (see especially the writings of UNIDO in the early 1980s).

Second, industrial restructuring has been used to signify industrial structures that combine higher rates of economic growth with greater attention to equity and to ‘sustainable’ growth—to the replacement of nonrenewable income with renewable income. (A leading reference is Fernando Fajnzylber, *Unavoidable Industrial Restructuring in Latin America* (Durham, NC, Duke University Press, 1990.)

Third, significant industrial renewals in individual countries have been cited as examples of desirable industrial restructuring.

Fourth, and increasingly the case, discussions of industrial restructuring have begun by analyses of distortions in relative prices, and by rankings of the international competitiveness of individual industries. These analyses are used to support one or another of the following orientations to achieve industrial restructuring:

a) changes in macroeconomic policies and the elimination of microeconomic distortions, leaving the determination of the new structure of industry (and the economy as a whole) to the response of individual producers and consumers to the new market signals (with the expectation, at least in developing countries, that the restructuring will result in an increased emphasis on activities evidencing a factor intensity that reflects the country’s traditional relative factor abundance, with any major variations from that taking place only at a later stage of development).

b) changes in macroeconomic policies and an industrial policy that emphasizes measures to promote productivity and strengthen economic infrastructure, possibly altering the factors of comparative advantage but not attempting to identify the specific industries likely to be ‘winners’ or ‘losers’.

c) changes in macroeconomic policies combined with an industrial policy that pays attention to economic infrastructure but leaves less to chance and emphasizes support for specific activities (breaking more openly with the position that a country’s economic activities should be determined by relative factor abundance at a given time).

d) changes such as those mentioned in (c), but also extending beyond the economic sphere, affecting institutions, governance mechanisms and perhaps even efforts to modify aspects of culture.

Of this group, (a) and (c) have received most attention from economists. Category (d) is usually reserved for exceptional situations, such as after a military defeat (for example, that of Japan after the Second World War) or a strong military intervention (as in the case of Chile in the 1970s and 1980s). In those cases the institutional changes and any changes in cultural values are often changes which the society would not have accepted in advance, but which appear to be accepted afterward in those cases in which there is a substantial economic improvement. Economists usually have little to do with the determination or implementation of the noneconomic changes accompanying those of an economic character and perhaps vital to major economic improvement. Nonetheless, many economists do not hesitate to recommend the same economic policies to other countries not yet experiencing the probably critical noneconomic changes, perhaps assuming that the success of the economic measures abroad may alter preferences in other countries or may lead to the adoption of comparable noneconomic changes.

There are many problems with the first three approaches to industrial restructuring. Many of the assumptions of the first two approaches are not explicit, and it is not clear why the economic structures favored are optimal for specific developing countries. Moreover, reference is made to the structures and standards of industrialized countries, but there are differences between the structures of the various industrialized countries, and some appear to have achieved much more favorable results than others. As for the case studies of industrial restructuring in specific, usually intermediate-level economies, many of the expositions focus on the situations ex ante and ex post rather than on results with and without the particular restructuring of industry. Frequently the studies do not provide enough of an explanation as to why certain measures functioned well (or poorly); they do not really deal with the process of change.

Most believe that the fourth approach, focused on distortions in relative prices and usually involving rankings of the international competitiveness of industries, is the most reasonable, and they would tend to emphasize 4(a) or 4(b). The selection of industries that are ‘winners’ requires more information for well-founded choices than is generally available, and it is an approach that has not been successful in many countries. Still, it may be warranted for certain groups of industries related to the processing of abundant natural resources. Finally, it is necessary to pay some attention to equity, not only on other-than-economic grounds, but also so that those who might be adversely affected by the process of restructuring do not sabotage the changes that promote the efficiency and competitiveness of the sector.

III. Comparative Advantage and International Competitiveness

The objective of industrial reconversion is to make the structure of industry more efficient and more internationally competitive. An important step would seem to be to increase the emphasis on activities in which the country enjoys a comparative advantage. To begin with, however, the theory of comparative advantage has been formulated in static terms, for the most part. The traditional Heckscher-Ohlin-Samuelson model of international trade indicates that countries export goods intensive in those factors of production of which they have relative abundance. As a consequence, trade takes place especially between complementary economies, the composition of trade should reflect sources of comparative advantage, and trade should have important consequences for income distribution inasmuch as trade is an indirect means for countries to exchange factors of production. But empirical studies reveal that most trade is between countries with similar resource endowments, much trade is intra- rather than inter-industry, and the income distribution effects of the trade have been much less than would have been expected. This has led international economists to modify their models, and, in particular, to incorporate more from industrial organization into the theory of international trade.[1] It has led to models which explain trade as a result of economies of scale and (especially) imperfect competition. Even dumping, heretofore regarded as an aberration, emerges as a new theoretical explanation of international trade; the models include reciprocal dumping in which, in the two-country case, neither country enjoys a comparative advantage in the product exported. Those and the strategic-policy models of international trade undermine the once-strong conclusion that the competitive pressures of increased liberalization alone will ensure a major improvement in the international allocation of resources. The new theoretical developments may help explain the extension of interest of policy-makers from anti-dumping measures to more broadly oriented policies that deal with a wider array of anti-competitive practices—this, even in countries for which antitrust policies were once an anathema, and, in particular, in the European Economic Community.

The growing discomfort with the traditional theory of comparative advantage has now reached the attention of the general public with Michael Porter's recent study, *The Competitive Advantage of Nations*,[2] and the numerous public presentations by Porter and others expounding his message. Porter begins by reviewing the factors that have been offered to explain competitive success: abundant and inexpensive resources, sound macroeconomic

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1 See, e.g., Paul R. Krugman, "Industrial Organization and International Trade," ch. 20, vol. II of Richard Schmalensee and Robert Willig (eds.), *The Handbook of Industrial Organization* (Amsterdam, North Holland Publishing Co., 1989).

2 Porter, *The Competitive Advantage of Nations* (New York, The Free Press, A. Division of Macmillan, Inc., 1990).

policy, the product cycles, excellence in management and good labor relations, and an industrial policy that emphasizes the selection of winners. He argues that these factors can contribute to export success but are not of central importance. The key in the long run, he insists, is the sustained growth of productivity, and he maintains that this has much more relevance than devaluations, especially for more sophisticated activities, and especially since competitive advantage is established not at the national level, but at the level of industries (often clusters of related industries).

Porter takes note of the growing concern of international trade specialists with the traditional exposition of comparative advantage. He acknowledges that abundant resource endowment of physical resources or cheap labor continues to be important in explaining the competitive advantage of certain basic economic activities, but indicates that those activities are not as profitable as others. Moreover, he maintains, technological change offers a means of avoiding or overcoming factor scarcity and the globalization of industry reduces the importance of resource endowment of an individual country. Economies of scale can explain competitive advantage even in the absence of relative resource abundance. The question is why certain nations take advantage of those economies, and certain industries within those nations. He insists that the successes in international competition are prepared for by competition in the domestic market, with few cases of international competitive advantage being registered by monopolies or activities favored by the state.

Porter states that the new paradigm of international trade (the paradigm of competitive advantage) has to explain:

1. Why enterprises of some nations choose better strategies than those of others;
2. Why a nation is the base of successful competitors—the importance of the environment;
3. The relevance of aspects other than the basic factors of production;
4. The importance of the productivity with which those factors are employed; and,
5. The importance of dynamic relations—innovations in methods and technology.

He affirms that the nature of competition and the sources of competitive advantage differ a great deal between industries; and, moreover, that the nature of economic competition is in a constant state of change. Thus, what is required is not a theory of equilibrium, but of disequilibrium.

For Porter, the new paradigm would be characterized by the interrelation of four elements: 1) factor conditions; 2) demand conditions; 3) the structure of industry, the degree of

rivalry, and enterprise strategy; and 4) support and related industries. Each of these four elements is affected by government policy and chance. Porter endeavors to explain the meaning, interrelationship, and possible contribution of the key elements drawing on the performance of twelve nations (and specific industries within those nations). He maintains that enterprises gain competitive advantage:

1. When the base country permits and supports a more rapid accumulation of assets and specialized capacity;
2. When the base country provides better information on a continuous basis, along with insight in product and process requirements; and
3. When the goals of owners, managers, and employees support strong commitment and sustained investment.

Porter stresses the importance of clusters of industries and of geographic proximity to facilitate communication and promote competition. He refers to four stages of competitive development —those impelled by factors of production, by investment, and by innovation, with a final stage of decline, fostered by wealth. Finally, he recommends deregulation; a policy to promote competition (though also certain types of cooperation among enterprises); and attention to education, research, and incentives to capital gains.

Porter's analysis strikes many economists favorably as regards the limitations of the traditional theory, the relevance of other elements, and the need for more attention to the analysis of disequilibria and dynamic processes. Nonetheless, although the elements of the proposed new paradigm incorporate what seems relevant to competitive advantage, the precise nature of the interrelations, and thus the new paradigm, is still missing.

What emerges from the study by Porter and the analyses of the trade theorists is that we are much less confident than before as to just what comparative advantage entails, but we have more reason than before to suspect that some of today's comparative-advantage activities are not the ones that offer the best opportunities for a country in the period ahead.

IV. Guaging International Competitiveness and the Sensitivity of Uruguayan Industry to Competition from Abroad

One of the first steps that many people believe should be done to determine industrial-restructuring needs is to estimate the competitiveness of individual industries. This is often begun by comparing prices in the country in question to those prevailing in international markets (and to those in the domestic markets of countries that export substantial portions of their output). In addition, one sometimes finds comparisons of physical input-output relationships and,

occasionally, some cost comparisons. International price comparisons often rely on questionable assumptions about exchange rates and mask country-to-country differences in price/cost relationships. Reliable cost data usually is not available, moreover, particularly key marginal cost data. The most common technique for estimating international competitiveness has been the calculation of Domestic Resource Costs (DRCs) for the full array of industrial products of a country as of a particular year.[1] A second approach, which has been employed in the EEC, has been to estimate the sensitivity of the various products of a country's manufacturing sector to foreign competition.

The DRC concept is of limited use in identifying activities of promise for the future; it is not possible to take account of shifts underway or that are yet to affect many relevant elements of supply and demand, and it is not possible to take account of sectoral and inter-industry interdependencies. Even though an analysis of domestic resource costs provides only point-in-time indicators of efficiency, it has become widely employed and can serve as a useful starting point for identifying product lines that are good candidates for detailed cost-benefit appraisals. This is true only if consideration also is given to half a dozen categories of adjustments and their varying impact on the initial ranking of products. Products related to those already manufactured, other products manufactured by similar techniques, and at least a few products that represent entirely new undertakings also should be taken into account if there is to be meaningful identification of areas of competitive strength.

The analysis of the initial group of products must be revised to take at least some account of the potential for each product afforded by the following:

(i) Increased capacity utilization;
(ii) Improved operational efficiency;
(iii) Economies of scale through increased product specialization;
(iv) Economies of scale and of scope as a consequence of larger plants, multiplant operation, and more widespread distribution;
(v) Use of more appropriate (in the sense of more efficient) production technology; and
(vi) Benefits of externalities, such as those provided by learning, and the costs of others, such as environmental pollution.

Consideration of new products must include the same factors. The end result would be a new product ranking that might have little in common with the initial point-in-time analysis.

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[1] The DRC provides an estimate of the cost to the domestic economy of producing a unit of value added in a particular activity, where the numeraire is the value at world prices. If the DRC of a product is less than 1.0, then it was advantageous to produce the product locally that year. The higher the value above 1.0, the more uncompetitive was local production.

Moreover, because so many elements would be based on very rough estimation, the reordering might be in terms of, say, three to five groups of descending competitive strength (rather than individually, in declining order, as in the point-of-time evaluations).

Small increments in operational efficiency may entail negligible added costs, and there need not be any measurable costs to achieving at least an initial level of benefits from learning. Similarly, small increments in capacity utilization may not entail much in the way of additional costs and may not entail any increase in fixed costs. For the most part, however, to take account of the adjustments listed—to increase specialization and scale of operation, to consider the use of alternative technologies (with perhaps some adaptation)—to substantially increase producers' capacity utilization or operational efficiency- all would require significant additional costs including some (often major) additions to fixed costs in order to achieve the added benefits, as would the learning-curve experience and the elimination of problems of environmental pollution.

Even such a preliminary ranking of activities requires consideration of the net effect of decisions involving additional expenditure—and attention may have to be given to some industry interdependencies as well. Moreover, what is involved is the *process* of industrialization, and that process may be affected by physical, institutional, and behavioral factors. If these factors approach the bottleneck stage (for the economic agents in question, in any event), attention to means of alleviating or bypassing bottlenecks also would have to be taken into account. Thus, serious project identification depends as much upon engineering data as on the record of past economic performance, and it may depend even more upon interdisciplinary information about ongoing processes. Efforts to ignore these factors and to concentrate on data from the past (data that reflects only realized market transactions) at the expense of information on constraints to industrial development, cannot be expected to be very helpful in characterizing the probable relative profitability of industrial activities in the future, even if consideration is limited to product lines in which technological change is not a major factor (which, of course, it should not be).

The measures of competitive sensitivity developed by Alexis Jacquemin, Pierre Buigues and other economists at the European Economic Community, are less familiar.[1] In the original formulation, an industry's sensitivity to foreign competition was determined by the level of (tariff and) non-tariff barriers to trade, the dispersion of prices for identical products between member states of the EEC (which was said to measure the fragmentation of the Community market), and

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1 Pierre Buigues and Alexis Jacquemin, "Strategies of Firms and Structural Environments in the Large Internal Market," *Journal of Common Market Studies,* Sept. 1989, pp. 53–67; and P. Buigues, F. Ilkovitz, and J. T. Lebrun, "The Impact of the Internal Market by Industrial Sector: The Challenge for the Member States," *European Economy. Social Europe*, Brussels, 1990.

the rate of penetration of imports from other EEC member countries (which was said to measure the share of domestic demand accounted for by imports), as well as the potential for economies of scale. The list of variables to assess sensitivity has been extended by Luis Porto to evaluate the prospects of Uruguayan industrial products in Mercosur.[1] The sensitivity approach to assess competitiveness allows for the inclusion of many important elements not taken into account in the DRC calculations, and it is not so tied to a single year, but data limitations make it difficult to apply at the product level, and the number and overlapping nature of some of the variables make the evaluations questionable. Also, it is subject to some of the same limitations as the DRC calculations, but it , too, can serve as a plausible starting point.

Both types of evaluations of international competitiveness overlook two key considerations, moreover. The main concern should not be a ranking of the international competitiveness of industries, many of which were never intended for more than the local market. Rather, the key questions are: 1) What is the cost of developing competitive output in the various lines of production relative to the benefits that such production is likely to yield; and 2) What is the reasoning of businessmen—outsiders as well as those already active in the various product lines—with regards to: a) developing such estimates, and b) undertaking the expenditures, major or minor, that are necessary to achieve competitive results (internationally competitive production backed by internationally competitive marketing and distribution). Only after such considerations are taken into account can anything meaningful be said about the competitiveness of a country's industries; it is that potential rather than the situation of 1990 or 1992 that matters. It is *expected* profitability, not recent profitability or profitability with existing facilities, that should determine conclusions about the competitiveness of the individual Uruguayan industries. Estimates such as those suggested here are likely to be useful even if the calculations are based only on contemporary data.

V. Policies to Promote Competition

One of the first lessons of microeconomic analysis is that monopoly or oligopoly can lead to higher prices and a less efficient allocation of resources than perfect competition—that profit

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[1] Porto considers: 1) The nationality of ownership of the leader firms; 2) product differentiation; 3) economies of scale; 4) the degree of openness into the economy for the country in question; and 5) the degree of integration in regional supply. In addition, he would like to consider the importance of barriers to exit, the situation of the sector in the productive chain, market power, and the relative importance of the individual activities. Porto, *El Mercosur y la Industria* (Montevideo, CEALS, 1991).

maximization in the context of market power leads to prices that exceed the marginal cost of production. That is static analysis, however, and economists such as Schumpeter and his followers have long maintained that monopoly profits or the hopes of them can spur a process of entrepreneurial creation, technological advance, and competition in dynamic terms. In addition, recent theoretical and empirical contributions have shown that small numbers of producers do not necessarily lead to the cooperation necessary to realize potential market power, and that, in any event, market power does not necessarily lead to inefficient economic results over time; even the correlations of high profits and high economic concentration may be due as much to superior economic performance as to market power. Still, the presence of market power does present opportunities for taking advantage of that power, and many countries that formerly avoided antitrust policies (competition policies) now employ them. Moreover, the European Economic Community regards competition policies as important to the success of the unified Common Market. Note, too, the importance attributed by Porter to competition in fostering internationally competitive enterprises.

Many officials, and many economists, in the countries of Mercosur have assumed that production from enterprises in the four countries will significantly increase competition in the region (at least if the common external tariff is reasonably low). Still, however much may be gained in terms of new information and the rationalization of production when the region's manufacturers of a product or their representatives sit down together, as in the Sectoral Accords currently being drafted, something is surely at risk, as Adam Smith suggested more than two hundred years ago.[1] Allowance for some form of antitrust or competition policy is no more than rational behavior on the part of governments, consumer groups, labor unions, and even producers who lack market power or are about to enter a regional integration agreement in which they will not enjoy much market power. Thus, it is not really surprising that despite the lack of experience with such matters, the topic of competition policies has finally made its way to the agenda of Mercosur. (Of the four countries, only Brazil has a potentially meaningful antitrust law and it is used but occasionally, as a club to limit the price increases of manufacturing. The general tendencies of Brazilian policy are permissive, even promotive, of anticompetitive practices.)

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[1] Given the absence of restrictions, enterprise representatives would not be responsible to their shareholders, and, indeed, would not be rational human beings (certainly in the traditional sense that economists use the term rational), if they did not attempt to take some advantage of market sharing, price-fixing, and other arrangements that tend to add to company profits but may also interfere with efficient resource allocation and the maximization of consumer welfare. Even a moral code that would make firebombing a competitor's factory or industrial espionage unthinkable would not impede some acts of tacit collusion (or cooperation).

Since much remains to be done to convince even government and consumer groups of the need for an antitrust policy, this initial statement will be brief. The following are among the key considerations: 1) Is the condition or practice under consideration inevitably so anticompetitive in nature that it should be made illegal per se? 2) If the condition or practice might reduce competition, but is not inevitably anticompetitive in its impact, is there a criterion for judgment that has a satisfactory economic rationale and that can be ascertained at an acceptable cost?

Antitrust laws have been addressed to situations of apparent market power, practices aimed at achieving market power, and practices that reflect the use of market power. An example of the first that would surely be of little interest in Mercosur, as the object of a penal action would be the mere act of having a monopoly or dominant market position, or of obtaining such a position as a consequence of a policy of investment expansion and energetic marketing. On the other hand, mergers, which can have various efficiency objectives, can lead to greater market power, and indeed, may be undertaken in part to ensure market power in a regional integration arrangement, so they may be of concern. Cartels and even more limited agreements to share markets or fix prices clearly are intended to restrict competition, as are some cooperative arrangements such as information sharing, and some implicit understandings such as those facilitating price leadership. Price discrimination and vertical restraints such as exclusive franchising and tying may or may not limit competition. Even some cooperative agreements may have mixed effects; thus cooperative research may have consequences favorable not only to economic growth but also to competitive pressures in the long run. Predatory pricing (and other predatory tactics) aim, by definition, to limit competition, but it is not always easy to distinguish between a predatory practice and one reflecting an entirely competitive intent.

Two factors should be kept in mind. First, economists are now much more aware than a generation ago that high concentration in the production of a particular product does not necessarily confer market power. Second, enterprise actions that are anticompetitive in the short run may have impacts that are favorable to competition in the long run. Related to this, there is a stronger economic rationale for a 'rule of reason' approach to alleged attempts to restrict competition than to the branding of certain practices as illegal per se. Unfortunately, a 'rule of reason' approach requires more complex analyses, and it is possible that the costs of halting minor but unquestionably anticompetitive actions could exceed the cost of the anticompetitive actions themselves (though credible threats to prosecute, manifested by occasional prosecutions of such cases, are likely to discourage some such anticompetitive actions and prove advantageous on balance). Also, since there is so little experience in the Mercosur countries with this area of law and economics, there is a risk that a proportion of the initial evaluations will be erroneous, with

some actions being wrongly blocked as uncompetitive and others that are uncompetitive being allowed to pass. That type of problem would tend to decline with experience, however.

On balance, it is clear that the potential losses of economic efficiency and consumer welfare are significant enough so that at least minimal standards to promote competition should be considered. Moreover, experience from the EEC suggests the need for both a regional standard and for legislation in each member country.

The potentially anticompetitive practices which seem to offer the most significant possibilities for consideration in Mercosur are price-fixing and market-sharing agreements, horizontal mergers, and predatory pricing (along with other predatory practices).

Agreements to fix prices are so manifestly anticompetitive in intent that they might be made illegal per se. Uniform agreements to common basing-point systems should be treated as price-fixing agreements. (These are agreements in which the price to a buyer is a prestated price at a particular city—not necessarily that of the buyer—plus transportation from that base city to the buyer, whether or not those transportation costs are actually incurred.) Other, even systematic pricing schemes of enterprises would have to be evaluated on a case-by-case basis. Probable consequences of legislation against price-fixing: the most blatant price-fixing arrangements would be halted, but some less formal understandings probably would continue.

Market-sharing agreements often seek to restrict competition, but they may make economic sense for some products in areas geographically distant from production points; also, the agreements may involve the sharing of information and the strengthening of smaller firms that allows for greater competition in subsequent periods. The market-sharing agreements are not likely to be publicized in many cases. Probable consequences of legislation calling for an appraisal of the possibly anticompetitive effects of market-sharing agreements: many market-sharing agreements would be hard to prove. Many firms that have a market-sharing objective and are concerned about possible antitrust prosecution would attempt to circumvent the problem by means of special legal clauses, or they would resort to mergers and joint ventures. Particularly aggressive and ambitious firms would ignore the geographical (or other) restrictions which industry market-sharing agreements might conclude, in any event. Result: a few market-sharing agreements would be stopped but the main effect will be to foster more mergers and joint ventures.

Mergers are undertaken for many reasons: to take advantage of complementary production opportunities and to realize synergies; to improve managerial capacity (and in the case of enterprises from small and formerly protected countries such as Uruguay, to upgrade overall capabilities); to take advantage of economies of scope (and perhaps reduce transaction costs); to

better position an enterprise with respect to technological advancement; for tax advantages; because of the age or health of the owners or key managers; for speculative reasons; to obtain market power; or to obtain political power or personal prominence (some of the activities of Donald Trump?).

The absence of restrictions on market-sharing agreements and the uncertainty about the starting date of Mercosur may explain the apparent lack of a major increase in mergers in the region, although public information is incomplete; there probably have been more mergers and joint ventures than is realized. In the EEC, there has been a notable rise in merger and joint venture activity, and efforts to increase market power, or to extend it to other countries, has played a role. In the U.S., a great deal of analysis has been undertaken during the past decade on the topic of merger guidelines, and there is considerable consensus on how to evaluate horizontal mergers.[1] Very few economists in the Mercosur region have undertaken such analyses, but this is essentially applied microeconomics and should not present substantially greater problems in Mercosur than in the US or the EEC, except for the fact that more of the data required is not readily available and thus would have to be estimated. Probable consequences of legislation requiring an analysis of the competitive consequences of mergers involving enterprises producing more than some set percentage of production in the region: the mergers or joint ventures most inimical to competition probably would be halted, but some mergers with potentially beneficial effects might be discouraged.

Finally, predatory pricing (and other predatory practices): efforts to eliminate (or weaken) competitors by pricing and other means may be less common in the countries of Mercosur than in Europe or the US, and it is not always easy to distinguish predatory practices from the

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1 Since 1984, US guidelines for assessing the acceptability of mergers no longer have been based exclusively on measures of economic concentration. The guidelines now deal with whether or not a merger is likely to create or increase market power or facilitate the use of that power. The guidelines establish a process for judging mergers which includes: 1) delineation of the relevant product and geographic market; 2) identification of the enterprises included in that market; 3) calculation and interpretation of market concentration; 4) estimation of ease of entry into the market; 5) evaluation of the efficiency of the merger; and 6) consideration of six other factors affecting competition in the relevant market. The process of merger analysis is complicated, sometimes expensive, and requires many elements of judgment, as well as the use of tools still not well developed by economists but necessary to judge dynamic processes. See especially Robert Willig, "Merger Analysis, Industrial Organization Theory and Merger Guidelines,"*Brookings Papers on Economic Activity. Microeconomics,* 1991, and "Symposium on Horizontal Mergers and Antitrust," *Journal of Economic Perspectives,* vol. I., no 2, February 1987. New merger guidelines were prepared in 1992, jointly by the US Department of Justice and the Federal Trade Commission. These were discussed at a panel of the Southern Economic Association in Washington in November 1992, notably in papers by Lawrence J. White and David T. Scheffman (the latter of which, "Ten Years of Merger Guidelines: A Retrospective, Critique, and Prediction," is forthcoming in the *Review of Industrial Organization*.

aggressively competitive practices of efficient firms. What makes this area of special interest, however, is that the standards adopted to assess predatory pricing could be applied to allegations of dumping. There is still a lively debate among economists concerning the criteria to use to assess predatory pricing. While use of any of several of these criteria or some combination of them probably would eliminate clear predators (and the worst cases of dumping), the exercises might require a great deal of time and resources relative to the results achieved. It might be best to wait 2-3 years until experience has been gained with the implementation of other policies aimed at dealing with anticompetitive practices (which include some of the elements needed to assess predatory pricing) before adopting a code for predatory pricing itself.

VI. Increasing Industrial Productivity

Productivity increases are essential to industrial competitiveness and industrial restructuring and should be of a type and/or be undertaken in a manner that leads to greater and more sustained increases in industrial productivity than would otherwise have occurred. The most common recommendation to increase industrial productivity has been to increase investment in industry. Increased investment will fail to realize its potential, however, without attention to best-practice use of production processes and best organizational arrangements. Indeed, even without new investment, often a great deal can be achieved simply by more attention to 'best-practice' techniques. Also of consequence in improving industrial productivity is more attention to infrastructure support—general infrastructure support such as roads, ports, electricity, communication services, etc., and more specialized support such as vocational training, engineering education and standards, testing or technological adaptation laboratories. Technological improvement, embodied and disembodied, is, of course, critical for the medium- to long-run.

Little will be said here about the guidelines for general infrastructure support because this is currently the subject for extensive public debate in Uruguay, and if the evaluations are proceeding more slowly than most would have hoped, perhaps it is in part because other-then-strictly-economic factors are of consideration and the methodology for determining the tradeoffs between economic and other variables has not received much attention from social scientists. One area of general infrastructure that is important for the medium-to-long-term restructuring of industry and which is not being given much attention in the discussions of industrial restructuring is education, especially primary and secondary education—this despite the apparent contribution of educational strengthening to the East Asian successes, and the recent, disturbing reports of

the Economic Commission for Latin America and the Caribbean on education in Uruguay.[1] Technological development requirements are receiving much more attention than before, particularly in conjunction with the expanded activities of LATU, the government applied-technology laboratory, and the Inter-American Development Bank Science and Technology loan. It may be questioned, given our limited understanding of the processes of technological change, if enough attention is being given to obtaining data, not only on inputs and outputs, but on the nature of ongoing responses in the process of technological change so that we will be in a better position to improve our criteria for designing technology projects and facilitating technological advance in the future. With respect to the greater use of best-practice techniques, the greater use of education within (or by) industrial enterprises, and decisions for technological improvement at the level of the enterprise, what more is it that government should do if it is already correcting the signals that businessmen face, strengthening its norms and applied technology laboratory and strengthening science education?

A key factor, I believe, in explaining the low priority that policymakers give to the improvement of best-practice techniques, organizational set-ups, and what has been referred to as X-efficiency, is that they tend to be unaware of the magnitude of the problem[2] —and they do not recognize that the same failure to fully exploit older technologies is often carried over to the new equipment and production processes that replace the old, leading to sometimes disappointing rates of return on the new investments. UNIDO field teams routinely reveal the possibility of increasing the productivity of individual machinery by 25, 50, or 100 percent and more. World Bank studies used to maintain that productivity improvements of the order of 25 percent were often feasible in entire sectors, but a recent report refers to the possibility of gains of 100 percent in what was considered one of the most efficient machine shops in India. (One can only imagine what the gains might be in lesser enterprises and in that subsector as a whole.)

Finally, a careful study by Howard Pack of the textile industry in one Asian and one African country shows unit costs of some plants with 1970s vintage machinery were as much as 50 percent higher than the costs of other plants with equipment from the years 1956–61, and that

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1 See especially Germán W. Rama y Sara Silveira, *Política de Recursos Humanos de la Industria Exportadora de Uruguay. Modernización y Desequilibrios* (Montevideo, 1991, Oficina de la CEPAL).

2 Some of the gap between best practice and that in use may reflect the inappropriate selection of production techniques. This has been a long-standing focus of economic analysis, but studies have shown that there are sometimes major gains to be made in developing countries. A limit to this line of argument is that some of the gains in lower costs and higher employment may not turn out to be gains if the products are modified and prove to be less salable in the markets to which it is sought to export them.

there were differences of almost 150 percent in the productivity of identical equipment.[1] Pack estimates that the productivity differences could be greatly reduced within three years, but this may be a very conservative estimate; there are cases of comparable improvements in much less time. Indeed, in Uruguay, with the new signals of greater economic liberalization and possibly forthcoming economic integration, some enterprises have registered productivity gains of the order of 50–75 percent in a single year, with little or no new investment or auxiliary expenditure—and with indication that at least some further gains will be forthcoming in the second year. In Uruguay, there are cases of smaller enterprises that have received assistance from the technical cooperation of government agencies, the Industrial Trade Association (established with government backing), and a number of private groups, often sponsored by multinational or bilateral aid programs. Finally, LATU has provided support (including some subsidization for foreign technicians) to firms that export. Some of the LATU support has gone to the improvement of production practices with existing equipment. What then, remains to be done? The answer to that question can be better understood after providing a more generalized answer to the question of how to upgrade productive efficiency.

In all countries there have always been cases of individual enterprises that have sought technical assistance either in their own country or from technicians in other countries. Even when the assistance pays for itself, the advice is not always optimal, in part because it may be too limited in scope. There may be advice that is better, with the difference more than compensating for the additional cost of obtaining it. Moreover, the advice (or a solution designed by the enterprise itself) may not uncover options that are as good or almost as good for the enterprise but better for the overall economy. (An example of this: an enterprise decides to meet the challenge of the forthcoming increase in international competition by specializing in a product that is expected to lead to a favorable rate of return but would require only a third the number of workers, rather than another product that might be uncovered in a broader enterprise diagnostic that would lead to an even higher rate of return or to a comparable rate of return but would only require a small reduction in the workforce to be produced efficiently.) Moreover, many enterprises do not have the specialized knowledge, or the knowledge of whom to turn to, or when best to turn to them, to uncover the most profitable product options or to inform themselves in a timely fashion of the changing profitability of production process alternatives, or to keep themselves continuously abreast of best-practice techniques and how to implement them. This is particularly the case for a country that has had as few competitive pressures as Uruguay has had until recently. This may be

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1 Howard Pack, *Productivity, Technology and Industrial Development. A Case Study in Textiles* (New York, Oxford University Press, 1989).

even truer if the low esteem in which business enterprise was held for so long—much lower than in other countries of the region[1]—discouraged many bright youths from considering a career in activities such as industry, or discouraged those in manufacturing from pursuing a more aggressive stance.

The fact is that many enterprises do not take advantage of available technical assistance in the marketplace, and they respond slowly and with skepticism to new public programs, many of which do not seemed aimed at enterprises with great potential. For them, for those who receive very incomplete advice, and for their economies, it would be advantageous to have a first-rate, ongoing public system of Industrial Extension Services (IES) that emphasizes overall diagnostics of enterprises, or an indirect system of support for such diagnostic activities, as, e.g., by allowing special tax deductions for such expenditures (independent of whether such enterprise diagnostics lead to investments), perhaps with subsequent partial reimbursement for the benefits received.[2]

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1 See Carlos Filgueira, Silvana Bruera, Carmen Midaglia, and Mariana González, "De la transición a la consolidación democrática: imágines y cultura política en el Uruguay," CIESU, Montevideo [1989].

2 Industrial Extension Services (IES) can include: technical information services ranging from brief handouts to detailed (even customized) studies for which full charges are levied; training programs; norms institutes; testing laboratories (until recently the principal responsibility of LATU); institutes of technological adaptation and innovation; export assistance programs; and most important diagnostic and consulting services, which are essential to take full advantage of the other services.

Among the institutions that have carried out IES are governments (especially ministries of industry or development banks), productivity centers, industrial trade associations, professional associations, large producers, and private consulting firms (Batelle Memorial Institute, for example). IES attempt to:

1) increase the efficiency with which existing equipment and technology are used in an enterprise;
2) facilitate the selection of more efficient technology and reduce the delay in the introduction of new technology;
3) promote the efficient use of new technology;
4) provide training that increases the ability of enterprises (a) to take the maximum advantage of new and existing technologies with a minimum of assistance from outside, and (b) to recognize the applicability of new technology without assistance from outside; and
5) enable firms to better market their products in domestic and foreign markets.

The justification for having such services provided by a government or subsidized, as with special tax deductions, derives from a degree of failure of the market to lead to an efficient allocation of resources. This 'market failure' is due to: 1) a public goods phenomenon; 2) the presence of externalities; 3) strong indivisibilities in production or distribution; 4) uncertainty; 5) limits in the capacity to process and analyze information; 6) limits in the capacity to perceive information accurately at the time decisions have to be taken; and 7) institutional arrangements that interfere with the flexibility of prices or resources.

Japan, Korea, Canada, and other countries have had major components of IES in the public sector. Within Latin America, Mexico is perhaps best known for the assistance it offers producers. In Germany, such services are offered primarily by the industrial trade associations. There do not appear to have been economic analyses of the effectiveness of the various components of IES in any country.

There are a number of implications of all this for a country such as Uruguay. First, the fact that changing economic signals have encouraged more firms to change their production processes, often with the help of consultants or advisors in government or private-sector programs, does not mean that this is being done as well as it might, and it does not deny the fact that many firms have not yet addressed themselves seriously to the question—with potential costs for their employees and the economy as a whole as well as their own enterprises. Given the general economic arguments for such services (see footnote 15, paragraph 4), and the (partial) subsidization of such activities, it is difficult to justify reserving them to special groups (enterprises with fewer than 50 or 100 employees, enterprises that export, etc.). At the same time, the high level of subsidization of some of the programs probably serves to unfairly and inefficiently ration activities vital for economic competitiveness, or will do so as the demand for such services grows.

There are at least four messages: first, although Uruguay has begun to take steps to provide or subsidize IES, the level of effort seems well below what can be justified by economic criteria and what is required if there is to be an industrial restructuring that will enable it to compete effectively in Mercosur or the more open economy toward which the country is also moving. Second, neither the government, the Industrial Trade Association, nor the various private agencies involved have a satisfactory notion as to which of the IES activities have a favorable cost-benefit ratio or are cost-effective; it would be desirable to clarify the criteria for such programs and to make greater efforts to estimate their effectiveness. Third, although substantial subsidization of IES may have been necessary to convince initial users of the services, continued subsidization should be reduced to allow for the fact that while IES provides benefits to the community as a whole, the chief gains go to the immediate users. This may become increasingly feasible as publicity is given to more of the successes of enterprises that can be attributed to IES. Fourth, to convince more enterprises to undertake comprehensive diagnostics in order to promote a restructuring of industry that offers greater efficiency and more promise of competitive strength in the long run, it would seem to be rational for the government to spend as much time (of key public

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Studies of agricultural extension services in the US by prominent econometricians estimate internal rates of return of 30–60 percent.

figures) and money in promoting this objective as in publicizing short-term stabilization objectives and in combating tax evasion.

Beyond this, let me add a few conclusions drawn from the vast and growing literature on technological development, which may provide some guidance, or at least cautions for the formulations of policies in that area:

1. There seems to be a great deal of difference between the policies that have promoted technological development most effectively in one economic environment and those which have worked well in another. This may reflect differences in the requirements of different periods in time to a degree, but it also appears to be attributable to differences in prevailing socioeconomic institutions and the underlying cultural values.

2. Students of Latin American technological development have had a great deal of difficulty in generalizing about the process in the region in the past. Moreover, the relevance of that historical experience for the technological change that would be most desirable in the future (efficient in promoting growth, given the constraints of or tradeoffs with non-economic variables) is not entirely clear. That is particularly true because of the changing standards of best practice in designing and implementing technological development brought on by the new technologies, and because of the recent shifts in Latin American economic policies.

3. Consider the lessons for technological improvement in developing countries set down by a distinguished international economist who taught for many years at a prominent school of business administration):[1]

    a) Less developed countries that develop a solid capacity for seeking and evaluating foreign technologies usually can acquire it on satisfactory terms.

    b) Developing countries can identify and gain mastery of a majority of the technologies they require without developing a scientific community first. Close relations between science and industry are important only at the most advanced stage. (This does not contradict the need for Uruguay to strengthen scientific training, and also to increase the generally distant relations between the two communities that have existed.)

    c) The technology appropriate for a country is greatly influenced by economies of scale and expected sales, including exports, the latter of which are influenced in turn, by government policy.

    d) A continuous process of learning is necessary to apply technology.

    e) When the technological capabilities of an economy increase, there are always new technological challenges and more need of organizational flexibility, including the development of technological networks between enterprises.

    f) The capacity for progressing depends upon the conditions of competition and regulation, and the absence of a horizon of risks that can block advances.

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1 Raymond Vernon, *Technological Development. The Historical Experience*. EDI Paper no. 39 (The World Bank, Washington, 1989).

(The latter would seem to apply to Uruguay insofar as advances in technological development are closely linked to the relation of investment to GDP, which remains very low, but I sense a thrust to improve the level of industrial technology that continues to move ahead despite the presence of risks that inhibit investment generally.)[1]

4. Inasmuch as the importance of technological development for Uruguayan industrial competitiveness will undoubtedly increase over time, it is well to take note of the findings of a prominent MIT commission on the relation between education, training, and productivity. The commission referred to the earlier, essentially economic accounting studies of the relationship between education and productivity, and discussed the contributions and what it considered the limitations of the human-capital approach, but expressed particular appreciation for the usefulness (the applicability in educational planning) of alternative approaches by sociologists and some economists which, among other differences, took explicit account of the heterogeneity of factors. These are case studies (and some broader analyses) of the context of the educational background, the training and the work organization differences for those employed in comparable types of activity in different countries. Also, note was taken of the value of studies examining the role of enterprise demand in influencing the level and the character of educational training. My impression is that neither of those types of analyses has yet received much attention in Uruguay.

5. The 'new technologies' are shifting the nature of production systems from those based largely on economies of scale and oriented to large series, to those that allow for production in small series. The latter are flexible, information-based but often relatively capital-intensive systems (in many cases, intensive in physical as well as human capital). Few Uruguayan enterprises have made this kind of shift to date (and many will not have to in the short-medium run, even to remain competitive), but there are major educational and investment implications for those activities that can benefit to an appreciable degree from the technologies in question.

6. Formal R and D is becoming more important in industry, but in Uruguay such R and D activities have been found primarily in a few large firms (and a few medium-size middle-technology enterprises). This probably will need to change if there is to be a restructuring of industry that will enable more Uruguayan enterprises to compete internationally, or even regionally.

VII. A Few Comments on Privitization and Deregulation, Equity, and Institutions and Their Role in Facilitating or Inhibiting Industrial Restructuring

A. Privatization and Deregulation

Too much has been written on privatization (or demonopolization) and deregulation to warrant adding much here despite the possible significance for the process of industrial restructuring in Uruguay. In general terms, the deregulation already in place should facilitate the increased mobility of resource reallocation that industrial restructuring requires and should help

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1 For a revisionist view of the level and/or productivity of investment in Uruguay, see Mariella Torello, "Las causas de una inversión insuficiente," *SUMA.* 13, October 1992, pp.37–67.

attract some new investment from foreigners and from Uruguayan-owned accounts abroad. Few of the privatizations or proposed privatizations have involved state industrial enterprises. The main contribution of privatization and demonopolization would be to improve the efficiency and lower the cost to users of what have been public services. Whether the costs are in fact lowered may depend upon whether private monopolies (or near monopolies) replace the public monopolies, and, if so, what kind of public regulatory commission or antitrust law is enacted. Finally, to the degree that privatization draws interested bidding from a sizable number of foreign companies, it may generate an awareness among more foreigners of the investment climate generally in the country as well as of the quality of life in Uruguay. This spillover effect, may, in turn, spur more Uruguayans to increase the dimensions of their own investments here. This reasoning would appear to underlie the thinking of some government officials and would tend to justify the considerable activity of the various government offices endeavoring to promote foreign investment.

B. Equity

Equity enters into consideration of industrial restructuring in two ways. First, is it possible to carry out an efficient restructuring of industry and still minimize the setbacks likely to be incurred by certain groups in the population and by certain activities, with their activity-specific skills? Whether or not that can be achieved, are mechanisms being set up to retrain, relocate, refinance, or otherwise compensate the losers in what will doubtless be a situation of net gain (certainly in comparison with what would take place in the absence of the restructuring), and to ensure that the prospective losers do not block the process of efficient industrial restructuring?

Attention is being given to the second topic, but surprisingly little to the first, even though any success in the first would tend to reduce the effort and expenditure required for the second—and doubtless offer political dividends as well. Comprehensive diagnostics of enterprises such as suggested in Section VI might help in this respect, which would be another reason for considering partial—and conditional—subsidization of such enterprise diagnostics. The subsidization (e. g., by special tax deductions) might be conditioned on the diagnostics considering more than a single restructuring option, one of which would involved the continued employment of a large part of the enterprise work force. In some cases, the more employment-intensive option might offer profitability alternatives sufficiently attractive to warrant its being selected by some enterprises. Thus, a more extensive process of search—more than perhaps

would be justified by private considerations alone—might lead to more desirable outcomes with respect to such matters as the overall level of employment.

C. Institutions and Their Roles in Facilitating or Inhibiting Industrial Restructuring

The institutions of a society affect the kind of response that the society is likely to make to new challenges and opportunities, and there is a growing body of literature in economics and related social sciences that may help explain the current process of Uruguayan industrial restructuring. However, that is a subject that perhaps only an Uruguayan should attempt to address. I will only note, along lines indicated by Mancur Olson and Amitai Etzioni, that to the degree that Uruguay values social cohesion and stability (conservatism) more than productivity and efficiency, the values of the society may not lend themselves as readily to the culture of innovation that one might be inclined to assume is necessary for a successful restructuring of industry and economic life in general. But perhaps social cohesion and stability contribute to a more solid if not a more rapid restructuring of the economy. Some of the current efforts of the government have been aimed at the transformation of certain Uruguayan institutions, and, in particular, at altering or eliminating institutional arrangements that appear to have inhibited the kinds of responses necessary for economic restructuring. Some questions may be raised about the net balance of the changes made (or sought) or about the manner in which some of them have been undertaken or are being attempted. This is a question that could be considered further.

VIII. Recommendations and General Conclusions

A. Recommendations

Uruguay seemed to first fully awaken to the need to modernize its industrial sector in the second half of 1990, after Brazil and Argentina announced plans to accelerate their move toward a common market. Numerous public talks and a great deal of media coverage followed, and within a few months there was an agreement of the four countries that are to form Mercosur. Less may have actually changed than one might have expected from the sense of anticipation and urgency expressed at that time. Recently, moreover, there seems to have been a further easing of the sense of urgency in the private sector, as Brazil continues to be wracked by a combination of political and economic problems, and there are new doubts about the latest, and presumably most promising, round of Argentine prosperity. Nonetheless, the economic atmosphere in Uruguay is

very different today than in the period before July 1990. More—and different types of—adjustments are being undertaken or considered than most observers would have believed likely. This is happening at the level of government, trade associations, industrial enterprises, and labor unions. Despite this, the question is whether what is being done is quite enough to take advantage of the opportunities and, particularly, to respond to the challenges. If not, the deficiency may be due in part to a lack of clarity as to what is meant by the phrases industrial reconversion and industrial restructuring, and to a possible lack of clarity as to how to deal with such a process—with the lack of guidelines for industrial reconversion and restructuring.

This paper attempts to clarify some of the issues and to contribute to a more informed public discussion on the subject. It takes note of the various meanings of industrial reconversion and industrial restructuring, and outlines the various policy alternatives that have been proposed to deal with the basic concern—the adjustments in both the private and public sectors that need to be made to make Uruguayan industry more competitive internationally.

First: it is necessary to take comprehensive, consistent, well-conceived microeconomic as well as macroeconomic measures; a reduced fiscal deficit, reduced inflation, and major changes 'to get the prices right' are not enough. Some form of industrial policy is desirable, and the more explicit it is, the clearer the signals will be (especially to small- and medium-scale enterprises), and thus the greater the likelihood that economic agents will respond along the lines sought.

Second: though macroeconomic stability undoubtedly is a necessary condition for an efficient restructuring of the industrial sector, some macroeconomic policies are not neutral with respect to the allocation of resources. Biases that may undermine the international competitiveness of tradable goods and services (such as those ordinarily associated with a policy of economic shock) should be offset by special microeconomic measures or by acceleration of those already scheduled for implementation.

Third: the design of economic policies should take account of the probable behavioral responses of producers and other economic agents (taking advantage of recent findings concerning the use of judgmental heuristics in decision-making rather than the perhaps more desirable but often unrealized responses suggested by maximizing calculations). The policies should be stated ('framed') in such a way that the signals are perceived by economic agents as having values as close to those intended by policymakers as possible.

Fourth: attention should be given to the possible consequences of the timing and sequencing of policy announcements and implementation.

Fifth: studies of the international competitiveness of Uruguayan industry should focus less on: a) what the relative competitiveness was at a point in time when much local industry was

not constructed for nor engaged in making a serious effort to be internationally competitive, or even on: b) indicators of the sensitivity of Uruguayan industries to foreign competition in a recent year (or for the recent period), and more on: c) the relative economic profitability of making the respective product lines competitive in price, quality, and service in the period ahead.

Sixth: greater advances in terms of efficient industrial restructuring would be achieved if industrial trade associations and labor unions were to continue the trend of recent years, and devote relatively more of their resources to efforts to raise the productivity of Uruguayan industry (as do their counterparts in many of the more industrialized countries), and perhaps relatively less of their energies to lobbying and other political activities.

Seventh: both the government and the private sector should greatly expand activities contributing to general enterprise diagnostics and other 'industrial extension services'. This would extend the search process and uncover a larger portion of the range of reconversion/restructuring options that are available. It could be done by allowing special tax deductions for such purposes to enterprises wishing to consider changes before actually committing themselves to expenditures, this as an alternative to official Industrial Extension Services such as found in Japan, Korea, and Mexico. The more comprehensive approach to diagnosing enterprise problems (as opposed to the single problem inquiries) would tend to identify more enterprise activities in which best-practice techniques were not being employed (with a potential for productivity improvement often in the 50–100 percent range), would improve the efficiency of some expansion and investment programs, and might well reduce the often adverse implications of restructuring for employment.

Eighth: industrial policy should emphasize the elimination of economic distortions and the strengthening of economic infrastructure, both of which can be strongly supported by economic reasoning. On the other hand, recent work in international trade theory provides grounds for seriously questioning the traditional theory of comparative advantage or any easily generalizable theory of comparative advantage; this work, along with that of Michael Porter gives new reasons for doubting that the identification of recent areas of competitive strength provides an adequate basis for emphasizing those same activities in the period ahead or for believing that there is any other adequate basis for selecting in advance, alternative 'winners' and 'losers'.

Ninth: policies to promote competition (antitrust laws or competition policies) are justified on theoretical grounds and by the experience of other countries, including another regional economic group—the EEC. Increased product flows from abroad cannot be relied upon to ensure increased competition. Price-fixing and market-sharing agreements and mergers should be the first areas in which to enact competition policies in Mercosur, though only the first of these

should be regarded as an almost inevitably uncompetitive practice, and therefore presumably illegal per se. Predatory-practice legislation, which could encompass dumping, might be considered at a later stage, with special regulations on dumping being reformulated in the interim.

Tenth: significantly more expenditure on education would appear to be warranted to ensure long-term industrial productivity and to accommodate increased technological development in Uruguay. This probably should begin with increased expenditures (and standards) in primary and secondary education. Plans for vocational training, engineering, and other technical higher education, and post-graduation educational worker or management programs should be based increasingly on analyses explaining the relationship of the specific types and levels of training proposed for support to the kind of industrial function and level of productivity increase sought—this without getting to the detail of attempting or identify 'winners' in the process of industrial evolution.

Eleventh: the interrelationships between science and industry and between industrial enterprises themselves should be expanded.

Twelfth: decision-making processes in the government's science and technology projects should be carefully monitored to see if it is possible to develop new behavioral hypotheses in this area and thus contribute to the formulation of better guidelines for technology projects.

Thirteenth: attention should be given to the role of institutional factors in facilitating or inhibiting economic restructuring, and to the possible need for reconsidering institutional arrangements that appear to retard efficient change. This would require the contribution of specialists from other areas of the social sciences, as well as from economics.

The adoption of recommendations such as these—indeed, even full public discussion of these proposals as components of a program—would give further impetus to efforts to advance the process of efficient industrial restructuring of a country such as Uruguay.[1]

B. General Conclusions

1. Although economics does provide clear principles for the allocation of resources at a point in time, nothing truly comparable is available for an actual process such as that of industrial reconversion or restructuring. Of course, economic analysis can contribute, but suitable guidelines for industrial reconversion depend upon many factors, some of which vary from one country to another. Thus, policies that are optimal for one

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[1] See also, Hugh Schwartz (ed.), *Supply and Marketing Constraints on Latin American Manufacturing Exports* (Washington, 1991, Distributed by the John Hopkins University Press for the Inter-American Development Bank).

country or very nearly so, probably will have to be adapted at least somewhat to be comparably effective in another country.

2. Industrial reconversion or restructuring is a *process*—a process involving human interactions. In order to improve predictability, it is necessary to incorporate into the analyses of economic problems elements from other social science disciplines that deal with human interactions.

3. In designing policies and measures for their implementation—at the governmental, trade association, enterprise or labor union level—it is likely to prove helpful to take into account:

   a) that many individuals do not perceive accurately all of the information relevant for making a decision at the time the decision has to be made, and this problem may not be adequately remedied by enterprise, trade association or government mechanisms aimed at compensating for such lags or shortcomings;

   b) that judgments often involve the use of heuristics or rules of thumb which, however much they may expedite decision making, nonetheless involve biases; and

   c) that the judgments of entrepreneurs may differ from those anticipated by government if enterprise objectives differ from those assumed by government in the aggregate or in some individual aspects.

Finally, even if it is not always possible to modify institutions that impede the attainment of policy objectives (at least in the short run), it may be feasible, by observing carefully the detail of decision making processes, to design policy measures that circumvent or greatly minimize the adverse effects of the institutions in question.