

SOCIAL SCIENCES

"COMPETITIVENESS": A NEW PARADIGM?

EMMANUEL S. DE DIOS

*School of Economics, University of the Philippines Diliman
1101 Quezon City*

INTRODUCTION

The word "competitiveness", or the phrase "competitive advantage", evokes varying reactions. For many people, including some economists who have not kept up with the changing nuance of discussion, a certain lax attitude prevails that equates "competitive advantage" with "comparative advantage", regarding the former at most as a concession to "popularization", while the latter continues to be the "technically" more accurate term. Certainly policy-makers and even some technical people in the government must be placed in this category. For example, the government's goal of "global competitiveness", to my knowledge, was not particularly concerned to differentiate itself from the traditional notion of comparative advantage; on the contrary, its implicit message was probably to *reinforce* the policy-prescriptions arising from a consideration of comparative advantage through the adoption of what at the time may have been to be a popular and less technical term.

There are two sides to those who think that a distinction is important. One side consists of those original writers on competitiveness. These include Porter [1990] and, in a less popular but more academically influential vein, Tyson [1992], and others. Another current in the same stream, less noticed in the Philippines, is the new Anglo-Italian neotechnological school concerned in fact with defining a new paradigm. For reasons to be explained later, these writers tend to attract their followers from the students and faculty of the business schools and also those, especially who are concerned, one suspects, to distinguish themselves from "orthodox" or "mainstream" economists.

On the other hand, influential and respected economists, foremost among whom is Paul Krugman [1995, 1994, 1993], appear to have dedicated a good portion of their effort to discredit the idea of "competitiveness", regarding it, among others, as the rise of a new demagoguery, or in Paul Krugman's words, "a dangerous obsession" that seeks to revive old misunderstandings that by now should have been laid to rest. While the first group, therefore, tries vainly to strive for intellectual status, the second seeks to expose what they perceive to be mere posturing.

Nonetheless, vague as they are, the distinctions are thought to be sufficiently important to be reflected as canon in official documents, such as those of the European Communities, for example:

"We must increasingly think in terms of competitive rather than comparative advantages. Comparative advantages traditionally relate to endowment in factors such as natural resources and are therefore fairly rigid. *Competitive advantages are based on more qualitative factors and can thus be influenced, to a large degree, by corporate strategies and by public policies.* In such a context, factor mobility and the capacity to combine factors effectively and to organize the social consensus on the share-out of value-added are becoming much more important than the initial factor endowment." [CEC 1993: 57] (Emphasis supplied.)

It is not this paper's immediate concern to take sides on policy issues, but first to clarify the theoretical position of those who hold to "competitiveness" as a concept, and where the differences may lie between them and mainstream trade theory. I discuss successively the relationship between the concept and unbalanced trade, absolute advantage, differential productivity growth, and the rationale for intervention. In the last section, I make an assessment of the beneficial contribution to theory of the idea of "competitiveness", but urge caution regarding its too-facile application to specific situations.

COMPARATIVE ADVANTAGE AND THE TRADE BALANCE

The most well-known treatment of the idea of comparative advantage is that by Ricardo [1973], in Chapter VII of his *Principles*. It is regarded as Ricardo's singular service¹ to have shown clearly how, not absolute prices but the ratio of prices, or relative prices, is the basis of international trade. Portugal is superior to England in the productivity of its labor in *both* cloth and wine industries; nonetheless Portugal's superiority over England in wine is greater than in cloth. Ricardo then demonstrates that it would be mutually beneficial to each country to specialize in producing that good in which its relative advantage is the greatest. The demonstration of comparative advantage is generally explicated as the idea that absolute advantage is unnecessary in order for trade to take place. It has as its corollary the idea that it is not possible for a country to be, as Joan Robinson [1978] put it, "undersold in everything". Strictly speaking, however, the demonstration of comparative advantage is a normative statement: it says that it is optimal for a country to specialize in the good in which it is relatively more productive, since to do so would be beneficial for the country concerned.

¹Ricardo is generally credited with popularising the concept of comparative advantage, although Schumpeter [1954] points out that Torrens may likely have anticipated him.

This demonstration has always been a source of much mystification among beginning (even graduate) students, for whom the common-sense calculation in money prices must seem overriding: as a purely practical proposition, if *both* Portuguese wine and cloth are cheaper in money prices than their English counterparts, then both will, of course, be imported from Portugal. Krugman [1995] in a review of a recent book by the celebrated Paul Kennedy², rebukes the latter for making the following statement:

"What if there is nothing you can produce more cheaply or efficiently than elsewhere, except by constantly cutting labour costs?" (Kennedy, quoted by Krugman [1995].)

Krugman then correctly points out that Kennedy fails to realize³ that not absolute but merely comparative advantage is needed for a country to benefit from trade. As it turns out, however, lay intuition is not entirely void of content, since the comforting idea that a country "cannot be undersold all round" [Robinson 1978 (1970): 214] is strongest only if trade is balanced, which implies that the exchange rate is set at the appropriate level. Most textbooks in international trade commit a sin of omission by neglecting to mention the subsequent suggestive paragraphs in Ricardo clarifying the matter. Suppose, Ricardo says, England were to discover a process for making wine that enabled it to match the existing money prices as prevailed in Portugal. In that event, according to him, England would stop importing wine; Portugal would run a trade deficit, continuing to import cloth but unable to export wine.

"Thus, then, it appears that the improvement of a manufacture in any country tends to alter the distribution of the precious metals amongst the nations of the world: it tends to increase the quantity where the improvement takes place." [Ricardo (1821)1973:87]

In Ricardo's world, it is clear the change in the absolute price levels owing to the respective contraction and expansion of the money supplies in deficit and surplus countries ultimately leads to a re-balancing of trade and a resumption of the operation of comparative-advantage. The question, however, is what happens if the price-specie flow mechanism fails to work?

The importance of the balanced-trade assumption is obvious both in theory and in empirical work. For a deficit or a surplus large enough, general propositions regarding comparative advantage may fail to hold. This fact is actually implied by the existing theory (e.g., by Helpman and Krugman [1985: 18-19] in their well-known

²The reference is to Kennedy's book *Preparing for the Twenty-first Century*.

³Not to mention that he also inexcusably mistakes David Ricardo for Adam Smith.

book) but seems surprisingly to have attracted only minor attention; indeed only recently has an attempt been made to work it out explicitly [Deardorff 1995]. In empirical work, one needs only to recall one of the earliest tests of the Heckscher-Ohlin version of the comparative advantage theory [Leontief 1953]. "Leontief's Paradox", as it has since become known, presented a puzzle, since the U.S., a presumably capital-abundant country, was found to be importing both capital- and labor-intensive goods. As John Chipman pointed out, however, one of the simplest explanations for this paradox is simply that the U.S. was running a large balance of trade deficit, thereby improving both capital and labor: "A theory that purports to explain trade flows cannot afford to ignore trade imbalance [Chipman 1989: 939]."

To make the distinction between absolute and comparative advantage clear, we may appeal to the idea of a "real exchange rate", which may be defined as the ratio of domestic to foreign prices. For simplicity, make the same assumption Ricardo did, and suppose goods to be produced using only labor. Let e stand for the nominal exchange rate, and p_i and P_i respectively for domestic and foreign prices of good i , respectively. Then obviously the relationship between eP_i and p_i determines whether the good in question is to be exported or imported. Or, what is the same thing, defining $e_i = p_i/P_i$, it all depends on whether e_i is equal to, greater, or less than, e . One has an *absolute disadvantage* (resp. *advantage*) in good i if $e_i > e$ (resp. $e_i < e$).

Generalize this across all goods and rank the goods $i \in N (= 1, 2, \dots, n)$ in decreasing order, so that (disregarding possible ties) we have:

$$(p_1/P_1) > (p_2/P_2) > \dots > (p_{n-1}/P_{n-1}) > (p_n/P_n) \quad (1)$$

or equivalently,

$$e_1 > e_2 > \dots > e_{n-1} > e_n \quad (2)$$

The ranking of these goods according to either (1) or (2) obviously accords with increasing comparative advantage⁴. Suppose for the moment that the *nominal* exchange rate, e , i.e., the rate of exchange between two currencies, is set parametrically. Then it will obviously "break" the chain (2) at some point, so that two index-sets may be defined: $M(e) = \{i \in N \mid e_i > e\}$ and $X(e) = \{i \in N \mid e_i < e\}$. Goods in the index-set M will then be imported, since their money prices will be higher than that of their foreign counterparts, while the goods in the index-set X will be exported. It is in this sense that comparative advantage operates: what is exported and imported depends on the "order" of the chain. The assumption of balanced

⁴In this respect, the current discussion is identical with the well-known Ricardian "goods-continuum" model by Dornbusch, Fischer, and Samuelson [1977], except in that the exogenous nominal exchange rate renders the pattern of specialization indeterminate.

trade then presumes that the exchange rate will be set so that this chain is cut at a point where the (free-trade) value of exports equals that of imports.

Equally clear, however, is the possibility that for an e high enough, one obtains the result that $X(e) = N$ and $M(e) = \phi$, which would depict the case of a super-exporter, that is, a country that is a net exporter of all goods; similarly, if e is low enough, then possibly $X(e) = \phi$ and $M(e) = N$, a country that imports everything, although admittedly, this last is sustainable only if financing continues to come in, or (in the case of the U.S.) the country benefits from the seigniorage conferred by being the world's currency. For either extreme, the relevance of the ranking given by (1) or (2) is vitiated, since both positions imply that the prevailing e is to found at either end of the chain. The higher e is set, therefore, the larger the farther to the left the chain is broken, and the wider is the range of goods exported.

The upshot of this observation is immediate, and it is to question to what extent comparative advantage continues to be a *descriptive* theory in a situation where countries, for one reason or another, strive for the accumulation of large surpluses, say, through deliberate undervaluation of their currencies, or what Joan Robinson [1979] in an earlier period called the 'new mercantilism'. Both before and after the era of fixed exchange rates, balance of payments adjustment mechanisms have been far from automatic. Large capital movements and independent monetary policy have made it possible for governments to delay exchange rate movements, so that both large payment deficits and large surpluses persist. This is most evident particularly in the case of Japan and the NIEs in this part of the world.

The contemporary ubiquity of deficits and surpluses focuses on the importance of *absolute advantage* in the sense of a country's costs being *absolutely* lower than those of competitors when measured in some common currency. Deliberate exchange-rate undervaluation may then be viewed as an obvious attempt to run a surplus by underselling. Put another way, in important instances, a deficit *may*⁵ signify a country being "undersold" in absolute terms over a wide range of goods; corollarily, a surplus may imply it has absolute advantage over a wide range.

This is not the first time the accumulation of surpluses has been a primary concern of countries, and many of the reasons they may desire to do so are well known. Joan Robinson pointed long ago that where there are unused resources, a surplus earned through higher exports implies higher employment in straightforward Keynesian fashion:

"Nowadays governments are concerned not just to maintain employment, but to make national income grow. Nevertheless, the capitalist world is still always somewhat of a buyer's market, in the sense that capacity to produce always exceeds what can be sold at a profitable price. Some countries have experienced spells of excessive demand, but

⁵Remembering this is a necessary but not sufficient condition.

this corrects itself only too soon. The chronic condition for industrial enterprise is to be looking round anxiously for prospects of sales. Since the total market does not grow fast enough to make room for all, each government feels it a worthy and commendable aim to increase its own share in world activity for the benefit of its own people" [Robinson 1978(1965):204].

One can, of course, argue that these remarks apply even more to developing countries, where labor unemployment, and underemployment are chronic. It is for these reasons, "The characteristic feature of the new mercantilism is that every nation wants to earn a surplus from the rest" [Robinson 1978(1965):205].

FROM ABSOLUTE TO "COMPETITIVE" ADVANTAGE

What the idea of "competitiveness" has apparently added is simply another source of absolute advantage besides simple exchange rate changes, and this is *productivity growth*. It has in common with the "(old) new mercantilism" the idea that absolute advantage continues to be important, and that industries must be measured rather against a global standard. But where this standard used to lie in costs as affected by exchange rate changes, now it is sought in productivity increases through technology.

Consider the same chain as in (1) or (2) above. An increase in productivity may be depicted as a resulting reduction in domestic autarky prices. Note, first of all that a *uniform* increase in home productivity at the rate γ will leave the order of *comparative advantage* unchanged, since that merely amounts to multiplying all sides of the inequalities by the same scalar $(1-\gamma)$, thus preserving the order of the inequalities. Under certain conditions (balanced trade and identical and homogeneous preferences), the pattern of production and consumption would also be undisturbed. This is one reason why arguments based on comparative advantage tend to be somewhat impassive about technology gaps and productivity differences.⁶ It is easy to verify, however, that for any *given* exchange rate, e , the set X , as defined above, will be larger and M smaller for a uniform increase in productivity. The aim of earning a larger trade surplus, or minimizing a deficit, therefore lends an urgency to productivity increases (and, as we noted earlier, to exchange rate devaluation) that cannot be found in a simple admonition to follow comparative advantage.

Put this another way⁷. Suppose in autarky the home country's *level of productivity* and pattern of relative prices was exactly the same as that of the rest of

⁶Another reason, of course, is that the long-dominant version of comparative advantage, which was the factor-endowments theory, assumes that technologies are identical across countries, obviating the need for any discussion of differential technological levels, or technological progress.

⁷This is a formalization of an example first suggested by Dosi [1988b:413].

the world in all lines of industry. Then the equivalent of a chain such as (2) under these circumstances would be:

$$(p_1/P_1) = (p_2/P_2) = \dots = (p_{n-1}/P_{n-1}) = (p_n/P_n) \quad (3)$$

which implies comparative advantage exists nowhere. More than this, however, we would also have:

$$p_i = eP_i \quad \forall i \quad \text{-----} \quad (4)$$

which says there is no absolute advantage, either. The conclusion, then, is that prices are identical in autarky between the home country and the world, as a result of which no trade would take place, even if trade should be allowed.

Now suppose productivity in the rest of the world were to increase, so that the foreign prices of all commodities fell by the common proportion γ . World prices now fall to $P_i^t = (1 - \gamma)P_i$. The expression (3) above would clearly remain unchanged, since for any pair (i, j) and scalar γ :

$$\begin{aligned} [p_i/P_i = p_j/P_j] &\Rightarrow [p_i/(1 - \gamma)P_i = p_j/(1 - \gamma)P_j] \\ &\Rightarrow [p_i/P_i^t = p_j/P_j^t] \end{aligned}$$

so that going by comparative advantage alone, one would predict (as before) that no trade flows would take place. The equations (4), however, would no longer hold, and would be replaced by:

$$p_i > e(1 - \gamma)P_i = eP_i^t \quad \forall i \quad \text{-----} \quad (4')$$

The latter says the country would have an absolute *disadvantage* in all goods i , and would obviously be impelled to import them, with a corresponding all-round decline in economic activity. To the extent this happens, as when the exchange rate e does not adjust sufficiently, the country runs a deficit. Of course, none of these would occur under a model that from the beginning assumed that trade was always balanced (and therefore deficits are not possible), and that full-employment prevailed (therefore precluding a shrinkage of economic activity). On the other hand, disclaimers must always be measured against the real world. To some extent, therefore, there is some justification for saying that:

"...(E)xposure to international competition creates for each industry an *absolute productivity standard* necessary to meet foreign rivals, not only a relative productivity standard. Even if an industry is relatively more productive than others in the economy, and can attract the necessary human and other resources, it will be unable to export (or

even, in many cases, to sustain position against imports) unless it is *also* competitive with foreign rivals." [Porter 1990:8] (Emphasis supplied).

The above statement, as it stands, is not entirely correct, since we already saw that export performance also depends on the level of the exchange rate. A situation such as that described in (3) and (4') may obviously be remedied by a higher exchange rate or a reduction in nominal domestic costs, say wages, to restore absolute advantage. But changes in the exchange-rate and nominal wages tend to be derided by "competitiveness" proponents as a cheap way out, a coping mechanism that might divert attention away from the productivity upgrading that they regard as more essential (see, e.g., Porter [1989: 8-9; 642]):

"The expansion of exports because of low wages and a weak currency, at the same time that the nation imports sophisticated goods that its firms cannot produce with sufficient productivity to compete with foreign rivals, may bring trade into balance or surplus but lowers the nation's standard of living. Instead, the ability to export many goods produced with high productivity, which allows the nation to import many goods involving lower productivity, is a more desirable target, because it translates into higher national productivity. . . . The pursuit of competitiveness defined as a trade surplus, a cheap currency, or low unit labour costs contains many traps and pitfalls." [Porter 1990:8-9].

"The more serious problem with devaluation, however, is its effect on the process of upgrading in an economy. The expectation of a lower exchange rate leads firms towards a dependence on price competition and toward competing in price-sensitive segments and industries. Automation and other forms of innovation that improve productivity slow down, and the shift to higher-order competitive advantages is retarded." [Porter 1990:642].

Apart from these, exchange-rate and factor-price reductions are resisted, since they are thought to lead to a reduction of living standards. This will be true to the extent a significant part of consumption consists of foreign goods, and explains Laura Tyson's [1991:1] definition of competitiveness as "our ability to produce goods and services that meet the test of international markets, while our citizens enjoy a standard of living that is both rising and sustainable".⁸ The caveat regarding a "rising standard of living" anticipates the need to distinguish the prescription from export success based on comparatively low wages and currency undervaluation.

⁸Krugman [1994:31], who is no friend to the concept, views this as "the most popular definition of competitiveness nowadays".

SELECTIVITY AND TARGETING

If all the concept of "competitiveness" implied an all-round increase in productivity, it would probably be unexceptionable. In addition, however, competitiveness writers gravitate towards the claim that not all productivity growth is equally desirable: a nation would be better off through time only if its productivity, growth, and therefore its exports, were concentrated on goods "with high productivity", or are "sophisticated".

This raises the question of what really causes "a rising standard of living", since as Krugman [1994:32] points out, the standard of living does not even have to depend on "meeting the test of international markets" in an absolute sense. (This is even more true for the U.S., where international trade constitutes only a small part of GDP.) From the viewpoint of comparative advantage, a country's economic well-being will improve with productivity, when and wherever this occurs.

To illustrate an aspect of this debate, suppose a country consumes both tradables and nontradables. Productivity growth may occur in either. To make things stark, assume that nontradables are low-tech, and tradables are high-tech. Now consider the familiar Salter diagram with tradables and nontradables (Figure 1). Higher productivity in nontradables alone would raise the welfare of the country (in the diagram, a movement from Point 1 to Point 2 owing to an outward shift of the production set). From the viewpoint of comparative advantage, this gives rise to no problems, so long as the real exchange rate (defined now as the price of tradables *vis-a-vis* nontradables, and equal to the slope of the indifference curves) is adjusted to reflect a higher relative price of tradables; still it is evident that national welfare has increased, with a higher proportion of both consumption and production of nontradables compared with before.

Of course it is also possible to attain an equivalent improvement in welfare through an increase in productivity occurring exogenously in tradables alone (which is depicted by a movement from Point 1 to Point 3). From such a viewpoint, therefore, there is no difference. Assuming a choice were possible, however, "competitiveness" writers would probably prefer a path that brought the economy from Point 1 to Point 3, rather than one that took it to Point 2, since the former involves the production of more tradables.⁹ Ultimately, the competitiveness argument must involve a judgment that certain activities are simply more important than others in the long-run, since they are associated with continuing technological improvement and hence a higher trajectory for productivity growth, while other activities carry less promise. For example, tradables are more important than nontradables; technology-intensive industries are more important than less technology-intensive ones, and so on.

⁹Note that I abstract from questions regarding payments imbalances here. The case for producing tradables would only be too obvious if the country were running a payments deficit.

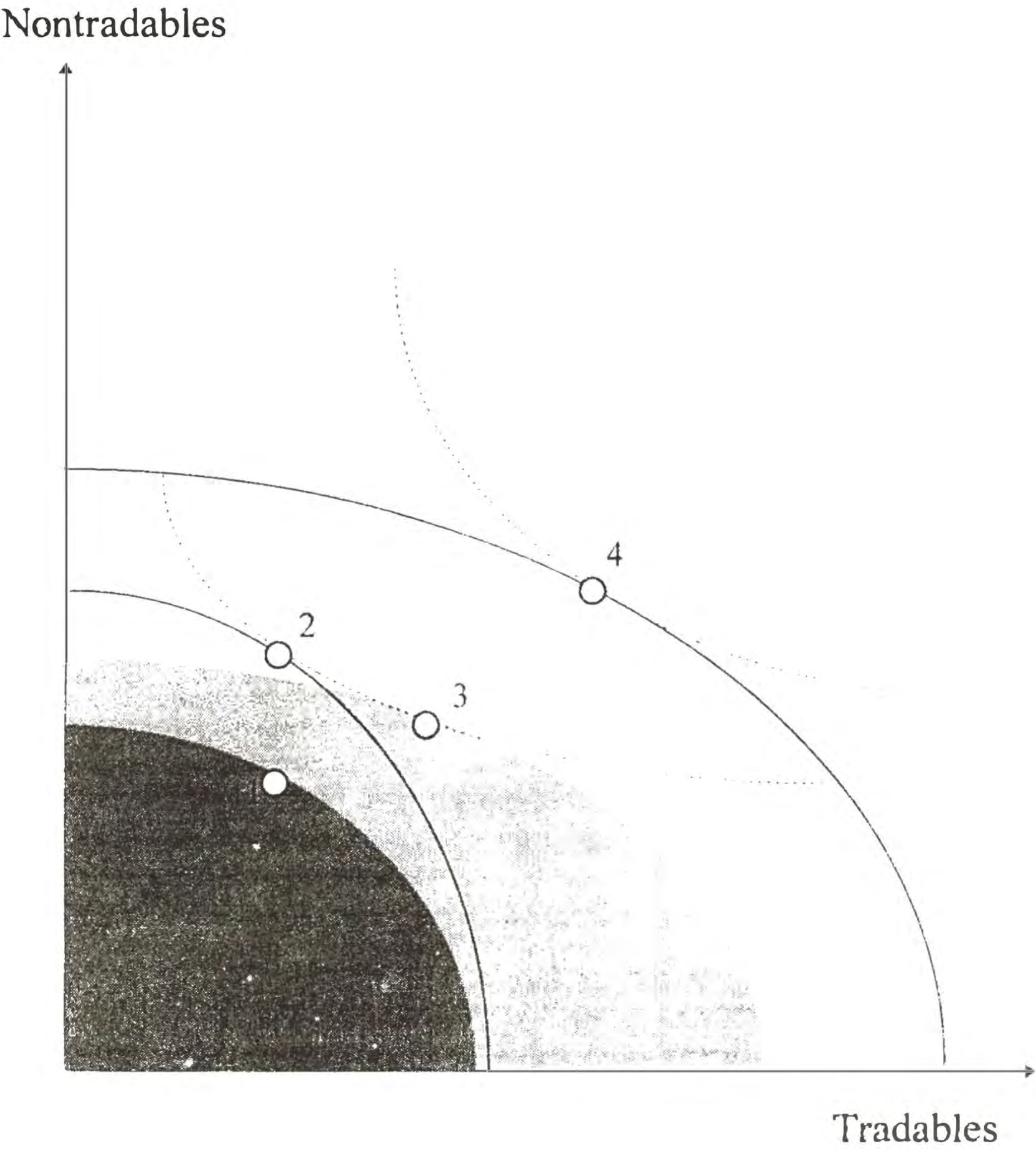


Figure 1. Salter diagram.

Tyson, however, [1991:11] confesses that:

"Unlike most free traders unilateral and moderate alike, I believe that what we as a nation make and what we trade matter. *The composition of our production and trade does influence our economic wellbeing.* Technology-intensive industries, in particular, make special contributions to the long-term health of the American economy. A dollar's worth of shoes may have the same effect on the trade balance as a dollar's worth of computers. But . . . the two do not have the same effect on employment, wages, labour skills, productivity, and research – all major determinants of our long-term economic health." (My emphasis.)

In essence, therefore, the argument Tyson and others are making is that a greater share of *current* production devoted to technologically promising industries will determine the chances for continued productivity growth in the *future*. These considerations cannot be depicted in a diagram such as Figure 1, which compares end-states but has no time dimension.

It might be thought initially that the idea of selective promotion in anticipation of future productivity growth may let comparative advantage slip back in through the backdoor. Can one not argue, after all, that those sectors and industries in which future productivity growth is most likely are precisely where comparative advantage is to be found (say, those to the right of a chain such as (2))? This, however, is not the idea of "competitiveness". Information regarding prospective growth is not derived from the existing size of the current complement of industries, but from an exogenous assessment of technological trends.

INFANT INDUSTRIES REDUX

The idea that present commitments and interventions – which may even be deleterious in the short-run – may be redeemed and exceeded by future industrial prospects is nothing new analytically. The purely economic rationale for preferring the growth of some activities over others is fairly well elaborated and understood. Indeed, in many instances, it has not been the writers on "competitiveness" that have contributed to the "new trade theory", but subsequent critics of "competitiveness" and others who caution moderation, including Krugman. This is by no means surprising, since a good deal of the argument was already anticipated by that other great exception to the free-trade and comparative advantage doctrine, namely the infant-industry argument. In the current literature, however, arguments for preferential treatment of certain industries are based on two factors.

External Economies

The first reason arises from various *external economies* thought to arise from certain, especially high-technology industries. They refer to the higher productivity enjoyed by an industry or the entire economy which are not enjoyed by single firms, such as the creation of a highly skilled and knowledgeable technological work force that can be shared throughout the industry or economy, the achievement of network economies and standardization, and so on. Like the old rationale for an infant industry, these benefits are thought to be associated with an increase in the scale of output of the particular industry.

The significant difference in justification is twofold: (a) Past arguments for protection appealed to the importance of enlarged sales to the domestic market as a mechanism for attaining the increase in output. Now outlets are thought to lie primarily in sales to international markets. This, of course, implies that "competitiveness" is associated with an aggressive export posture instead of the import-substitution strategy implied by earlier protectionism.¹⁰ (b) Second, the nature of externalities anticipated by "competitiveness" arguments are primarily technological in nature; the catch-up involved is more ambitious and is determined by the moving international technological frontier, an outcome of the concern for absolute advantage. Compare this with the old infant-industry arguments that were couched in terms of attaining minimal industrial requirements for a "big push" or political security, rather than in pushing out the technological frontier of the industries involved. This is connected with the observation that reaching the technological frontier is associated less with the accumulation of physical capital than with human capital and technological knowledge (i.e., the distinction between the so-called "second-wave" and "third-wave" technologies).

Rent-Shifting

The second justification for intervention under the competitiveness paradigm is called *rent-shifting*, and proceeds from the observation that in practice, many "strategic industries" are oligopolistic in nature, so that only a limited number of firms may be accommodated. Examples cited are, again, aircraft, computer parts and telecommunications equipment, and electronics. Because of increasing returns to scale or scope, network economies, product differentiation, high investment costs, or the large expenditures on R&D required to meet competition, only a handful of firms may ultimately exist to serve the markets for such product-lines.

This implies that rents may be enjoyed by firms that do manage to enter such markets and survive. If so, then there may be a net benefit to the *nation* whose own firms do manage to share in these markets. These benefits take the form of the

¹⁰This close relationship is shown, for example, in Krugman [1984] which shows how protecting the domestic market can aid foreign sales.

profits or high wages that the existence of such industries make possible. These are national gains, in the sense that they are removed not from residents but from foreign firms and customers. For this reason, some public intervention, say, in the form of an export or production subsidy¹¹, is thought justified if this should lead to an enlargement of the share of such home-grown firms in the world-market (and the costs of public intervention do not exceed the benefits to the firms). The actions of the U.S. government in its bilateral trade disputes with the European Union over aircraft production and with Japan over telecommunications equipment and autos and auto parts may be viewed in this light.

New View of Technology

A valid question to pose before the "competitiveness" paradigm is why the response to technological externalities must take the form of industry- (or, even firm-) specific measures. Why can these not be solved instead by broad-based and nondiscriminatory intervention, such as subsidies to education or to basic research?

This brings us to a third pillar of the "competitiveness" argument, which is less noticed in the U.S. literature but more prominent in Europe, the "new view of technology" spread primarily by the Anglo-Italian school.¹² The prevailing economic characterization of useful technology is primarily that of a set of freely available blueprints, and therefore a good inherently characterized by spillovers. The need to grant monopoly rents artificially through patent protection, according to the hitherto prevailing view, is proof by negation of the inherently "free-good" characteristic of technology. Obviously, if this were the case, then intervention in the cause of productivity would mean primarily enhancing the production of knowledge and technology in general, e.g., through subsidies to education, basic science and research, as well as patent protection to inventors, etc.

This view has been modified, if not challenged, however, by an alternative paradigm that draws attention to the nature of innovative activity that is increasingly industry- and sometimes firm-specific. Dosi [1988a: 223] counts the following among the stylized facts of innovation:

- (a) ...the increasing complexity of research and innovative activities militates in favour of formal organizations (firms' R&D laboratories,

¹¹The by-now classic example is Brander and Spencer [1984], who show how an export subsidy can increase national welfare. A nontechnical exposition is found in Spencer [1988]. Eaton and Grossman [1986], on the other hand, demonstrate how sensitive the *type* of intervention required may be to the nature of competition faced by the domestic firm – suggesting that the knowledge required to distinguish one case from the next may be so detailed as to render the policy-prescription useless in practice. For one, the Brander and Spencer prescription for an export subsidy holds true only if the competition is in terms of quantities, i.e., Cournot-competition.

¹²Primarily the Science Policy Research Units (SPRU) at the University of Sussex. A major work is Dosi, Freeman et al., [1988].

government laboratories, universities, etc.) as opposed to individual innovators as the most conducive environment to the production of innovations. Moreover the formal research activities in the business sector tend to be integrated within more or less integrated manufacturing firms.

(b) ...a significant amount of innovations and improvements are originated through 'learning by doing' and 'learning by using'. That is, people and organizations, primarily firms, can learn how to use/improve/produce things by the very process of doing them, through their 'informal' activities of solving production problems, meeting specific customers' requirements, overcoming various sorts of 'bottlenecks', etc.

(c) ...in spite of significant variations with regard to specific innovations, it seems that the directions of technical change are often defined by the state-of-the-art technologies already in use; quite often, it is the nature of technologies themselves that determines the range within which products and processes can adjust to changing economic conditions; and it is generally the case that the probability of making technological advances in firms, organizations, and often countries is, among other things, a function of the technological levels already achieved by them. In other words, technical change is a *cumulative* activity.

The upshot of this description is that modern innovative activity is increasingly an organized affair, performed in-house, tacit in nature, cumulative, and path-dependent. It is outside this paper's scope to inquire into the analysis of microeconomic behavior that leads to the emergence of such "stylized facts". The above description, once accepted, however, supports a policy environment that must differentiate in favor of specific sectors that are deemed close to important technological frontiers. The implication is that there is less and less room for a detached "innovation-sector" (*a la* Edison) that churns out blueprints for *ab ovo* for enterprises to use. Instead, the picture is one where technological innovation takes place within producing firms that seek to improve what they are already doing. Support for continuing innovative activity therefore becomes increasingly difficult to separate from support to an expansion in the scale of certain sectors.

In the foregoing, I have tried to summarize the main analytical (as opposed to the polemical) strands of the arguments for "competitiveness" in a manner that I hope is as explicit as necessary for mainstream economists. To make an analytical case for the "competitiveness" paradigm and its policy-prescriptions, one needs to allow for the following: (a) unbalanced trade and nonfull-employment; (b) the pos-

sibility of gaining absolute advantage in some sectors entailed by cumulative productivity growth; (c) the existence of technological externalities; (d) imperfect competition and rents; and (e) a view of technological innovation as embedded in industrial or firm activity. Much of the work thus far has focused on (c) and (d). I hope in this paper to have called attention to the importance of (a), (b), and (e) for the argument as well.

ASSESSMENT

In many ways, writers on "competitiveness" – sometimes by sheer provocation – have compelled mainstream economic theory to address certain real-world questions that were heretofore regarded as too difficult or uncomfortable. The process of clarifying issues, however, has to my mind been hindered by the extreme inchoateness of the analytics of "competitiveness" and their popularizers' undue rush to advocate before analyzing.¹³ Indeed it has not primarily been the popular prophets of competitiveness (e.g., Tyson, Porter, and lesser lights) but rather their current critics who have done the theoretical spadework of introducing imperfect competition, scale economies, and externalities into economic theory.

While much work has been done, however, I suspect there will continue to be a blind spot in mainstream theorizing, as long as it relies primarily on comparative static analysis. For example, a good deal of work has been done on what happens and what policies are indicated *once* technological progress in one or another sector occurs. But there is less explicit modelling of *why* and *how* technical change occurs, except to the extent this is associated with increases in certain types of industrial output. Understandably, this blind spot can lead to either two things: writing off what one cannot model explicitly, or venturing plausible advocacies much ahead of rigorous analysis. In this concrete example, for want of sufficient handles on the problem, one may either write off the possibility in principle of giving differentiated encouragement to firm- or industry-specific innovation activities, or one may advocate broadside (and most likely wasteful) support for any and all output-increasing activities. In either case, I suggest, social interest may not be fully served.

One suspects that full understanding and elucidation of "competitiveness" notions will continue to be elusive, owing to the great difficulties presented by several issues current theory is ill-equipped to address. I mention only those that seem obvious to me: one is how to model the *uncertainty* and the *unevenness* in results that are inherent to the innovative process. A second is how to allow for sufficient *diversity* among production units (most models assume identical firms); a good amount of productivity growth has to do with the diffusion of best practice

¹³The important exception has been the valuable contributions of the writers on technology, led by the Anglo-Italian school. But these tend to adopt different methodological approaches and criteria altogether.

before it was even refined.

In the end, for a country like the Philippines, the aspect one should fear most from a vulgarization of the "competitiveness" notion is that it should divert attention from fundamentals and give the impression that difficult choices may be avoided. One may now hear statements, no doubt influenced by received versions "competitiveness" arguments, to the effect that an overvalued currency may even be good for the country, allegedly, since it forces producers to "move to the upscale market niches" that are "not so price-sensitive". Or, that we may as well forget about manufacturing, since that is "second-wave technology anyway" which is bound to become obsolete; perhaps the country may "leapfrog" into high-technology services. Or, that the government should display a more visible hand in determining industrial priorities, especially "strategic" industries; and so on and so forth.

All of these, of course, with enough goodwill and imaginative effort, could be made to yield an iota of plausibility. The question, however, is what relevance all this has for a country with poor infrastructure, large masses of underutilized labor, worsening quality of education, a gaping public deficit, and low savings. Under such circumstances, who is to say whether or not perhaps a good dose of old medicine – a hefty real depreciation, a reallocation of government expenditures towards fundamental infrastructure, basic education and health, controlled fiscal deficits, lower interest rates to encourage investments, and a good grip on inflation – may not do just as well, if not better, than the fancy and costly targetting demanded by "competitiveness"? In the end, even for those who aim ultimately to "compete", it is important to learn to walk before running.

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