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Draft, for comments only

**CLIMBING THE TECHNOLOGICAL LADDER:
OPTIONS FOR DEVELOPING ECONOMIES EXPORTS
AGAINST THE “NEW TERMS OF TRADE PESSIMISM”**

Abstract

Although developing countries exports of manufactures have grown significantly in the last decades, the majority of countries still depend on primary commodities or upon components and parts of manufactured goods as a source of export revenue. This paper explores the debate around manufactures exported by developing countries. In this debate the point of contention is whether there are “commodity-like” characteristics in manufacturing processes in developing countries, which could imply declining terms of trade, relative to developed countries exports, similar what has been observed for primary commodities. The dangerous element of this “new terms of trade pessimism” would be to imply that trying to change their pattern of specialization could be self defeating for developing countries exports and growth. Quite on the contrary, this paper will argue that the policy advice should be to be aware of the risk of fallacy of composition, present especially in labor- intensive manufactures, but at the same time, to promote a process of export diversification that creates dynamic comparative advantages and goes “climbing the ladder” towards more technologically advanced products.

I. Introduction

The terms of trade debate has always been one about the need or not for developing countries to industrialize. As Sarkar (2001) stated, the policy implication of the classical proposition¹ was that an agricultural country needed not to industrialize to enjoy the gains from technical progress taking place in manufactures; free play of international market forces would distribute the gains from the industrial countries to the agricultural countries through favorable terms of trade. Prebisch (1950) on the contrary

¹ The belief, which dates back to Adam Smith, that the terms of trade of primary products would show long-term improvement vis-à-vis manufactures, based on the law of diminishing returns in primary production and the law of increasing returns in manufactures in a free and competitive market-economy world.

argued that there was an important disequilibrium between the center and the periphery of the world economy which destroyed the basic premise of the international division of labor scheme. Thus, industrialization (for new countries) was not an end in itself but the principal means at the disposal of the countries of obtaining a share of the benefits of technical progress and of progressively raising the standard of living of the masses.

An element of this view of the world system was the hypothesis that the terms of trade of developing countries tended to experience a long-term decline (Ocampo and Parra, 2005b). This thesis, launched by both Raul Prebisch and Hans Singer (then also at the United Nations Department of Economic Affairs) in the aftermath of the Second World War, has generated since then a heated theoretical and empirical debate. According to Toye and Toye (2004), the continuing significance of the Prebisch-Singer (P-S) hypothesis is that it implies that, barring major changes in the structure of the world economy, the gains from trade will continue to be unevenly (and some would add, unfairly) distributed between nations exporting mainly primary products and those exporting manufactures. This could be, and has been, taken as an indicator of the need for both industrialization and tariff protection.

Although, after more than fifty years of debate, the empirical literature is not unanimous about the existence of a continuous long-term deterioration in the terms of trade for primary commodities,² and hence about the possibility of inferring their future behavior on this basis, there *is* a consensus as to the sharp drop in the barter terms of trade, especially from the 1920s on³. As Latin American structuralists argued in the 1950s, this is a compelling reason for developing countries to avoid further specialization in these products and, more importantly, to promote industrialization.

Although developing countries exports of manufactures have grown significantly in the last decades, the majority of countries still depend on primary commodities or upon

² This is the original and most common formulation of the Prebisch-Singer hypothesis. For a detailed analysis of this hypothesis and its consequences for economic development, refer to Ocampo and Parra (2003 and 2006).

³ Ocampo and Parra (2003).

components and parts of manufactured goods as a source of export revenue (Sapsford and Balasubramanyam, 1999). Does this dependence first on primary commodities and now on components and parts of manufactured goods imply that developing countries will have difficulties to profit from fast export growth? Ocampo and Parra (2005a) show that this could be the case for countries without participation in the dynamic technology-intensive manufactures markets.

Furthermore, a number of studies on developing-countries exports of manufactures have concluded that the trend in prices for manufactured products of these countries may be adverse. UNCTAD (2002) for example, shows that there are signs that prices of manufactured exports of developing countries have been weakening in the last 20 years vis-à-vis those of industrial countries, especially for the less skill-intensive manufactured exports. This would suggest that, rather than a problem related with specific characteristics of traditional commodities, the decline in terms of trade is related with exports from developing countries in general (Sarkar and Singer, 1991).

This has generated another debate in which the point of contention is whether there are “commodity-like” characteristics in manufacturing processes in developing countries, which place these countries in double jeopardy in their attempts to escape from unequal exchange in world trade⁴. This debate has generated what Athukorala (2000) calls the “new terms of trade pessimism”. The dangerous element of it would be to imply that trying to change their pattern of specialization could be innocuous for developing countries exports and growth, and that again it is self defeating for developing countries to try to industrialize. Quite on the contrary, this paper will argue that the policy advice should be to be aware of the risk of fallacy of composition, present especially in labor-intensive manufactures, but at the same time, to promote a process of export diversification that creates dynamic comparative advantages and goes “climbing the ladder” towards more technologically advanced products.

⁴ Cited by Athukorala (2000) from Thirlwall, 1999, pp.443.

As Athukorala argues, the new export pessimism does not exclude the possibility that some individual countries might do well in manufacturing for export and achieve significant terms of trade gains. Several individual case studies for Asia show that this is actually happening. Could the rest of developing countries also take profit of it? Maybe not all at the same time, but surely they can do more than what they are doing now in terms of promoting technological improvements, industrialization and approaching world markets.

The purpose of this paper is to contribute to this “new” debate, exploring the hypothesis that manufactures exported by developing countries may share some characteristics of traditional commodities, trying to identify some of those “standardized manufactures” and exploring the relationship between exports, according to their technological content, and economic growth. This characterization of manufactures will be also put in the context of the product cycle theory as presented by Vernon (1966).

The next section briefly describes the trends of world export markets since 1980. Emphasis is put on the technological content of exports and distinction between country groups. The third section shows the state of the debate. As Mayer (2003) presents a detailed summary of most of the findings in the literature about fallacy of composition and terms of trade of manufactures exported by developing countries, the focus will be in illustrating the underlying debate around the “new terms of trade pessimism”. The fourth section presents an attempt to identify the manufactures that can be catalogued now as “standardized manufactures” in the SITC Rev 2. Finally, building upon Ocampo and Parra (2005a), the fifth section will emphasize the importance of upgrading the technological content of the manufactures to create a solid relationship between economic and export growth, and present the conclusions.

II. World export markets since 1980

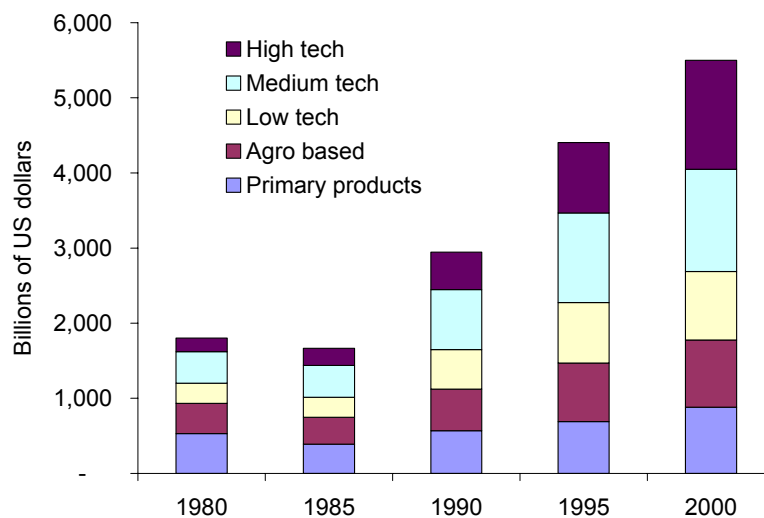
In current dollar terms, world exports have almost tripled in the last 20 years. As can be observed in Figure 1a, the product composition has changed dramatically, with primary products and natural resource based manufactures losing preponderance with respect to medium and high tech manufactures. Although developing economies trade

share has increased sharply, developed economies still export more than half of the total. As can be seen in Figure 1b this is even more marked in manufacture markets. The most impressive change is the increased share of exports coming from Newly Industrializing Economies (NIE) in Asia⁵ and, more recently, from China. Higher technology products are the most dynamic in world trade (Lall, 2001; UNIDO, 2002).

The opportunities for developing may not be widely available, as high technology exports may be subject to agglomeration effects. This is also true of some mid-technology sectors, such as car manufacturing. Opportunities for entering primary goods and resource-intensive manufactures are much higher but the dynamism of international markets is limited, and can thus lead to a “fallacy of composition”. An oversupply of exports in these sectors would lead to falling terms of trade for developing countries as a whole and/or to high-cost producers being displaced from the market. Low-tech manufactures fall in between these two cases.

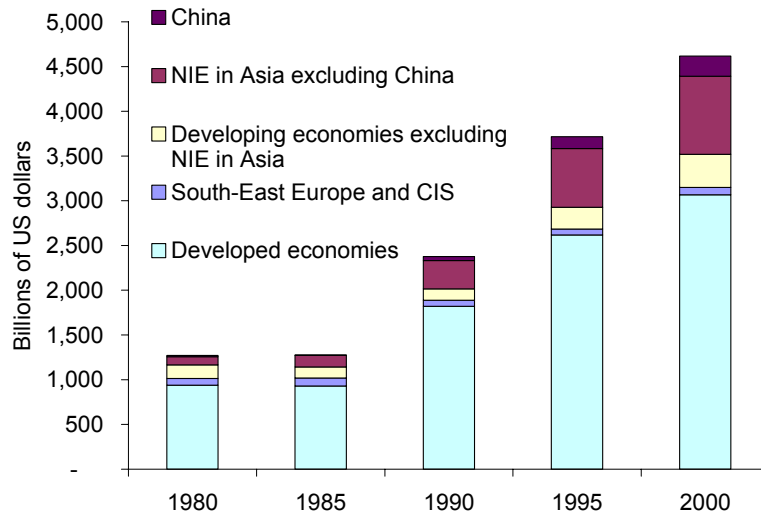
Figure 1

A. Total world exports by commodity group



B. Manufacture world exports by country group

⁵ This group includes China, Hong Kong SAR, Taiwan Province of China, India, Indonesia, Republic of Korea, Malaysia, Philippines, Singapore and Thailand.



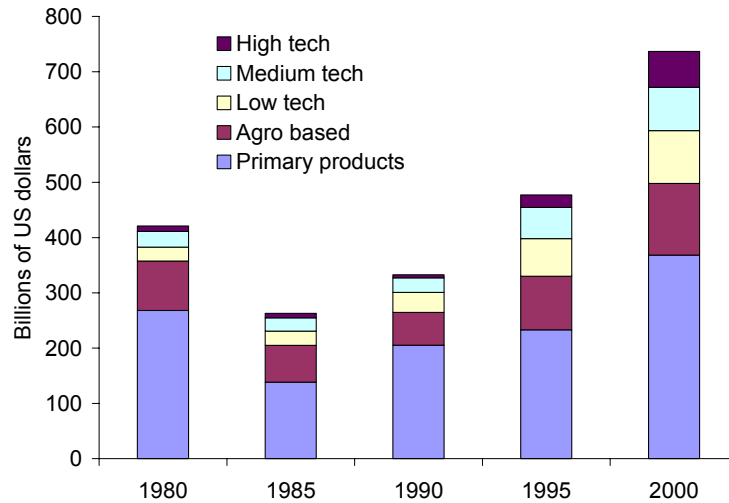
Source: Author's calculations based on UNCTAD, Handbook of international statistics online.

As Figure 2 indicates, the lost decade affected developing countries total exports. By 1995 they were back to the levels observed in 1980. NIE in Asia exports growth was also affected but in much less extent. During 1980-2000 there was a rapid transformation of the structure of developing country exports: primary goods and natural-resource intensive manufactures fell relative to low, mid- and high-technology manufactures. All developing country regions have diversified into the more dynamic components of world trade, but NIE in Asia diversified much faster (including into low-technology manufactures).

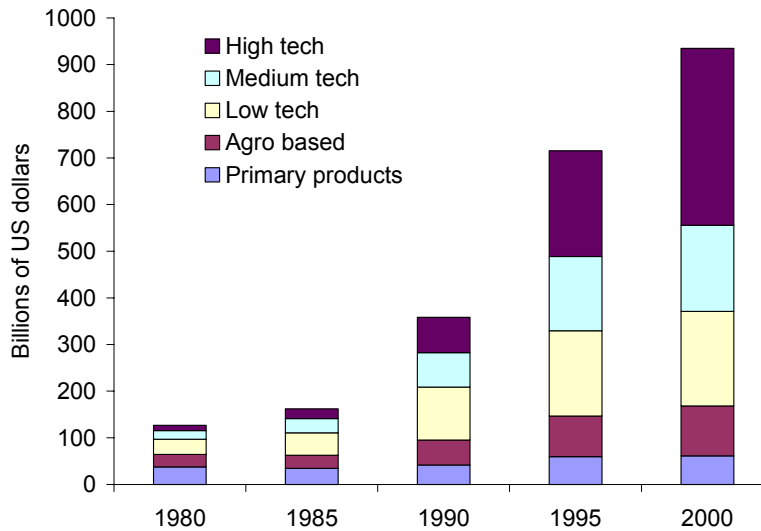
Figure 2

Composition of total exports by commodity group

A. Developing countries excluding NIE in Asia



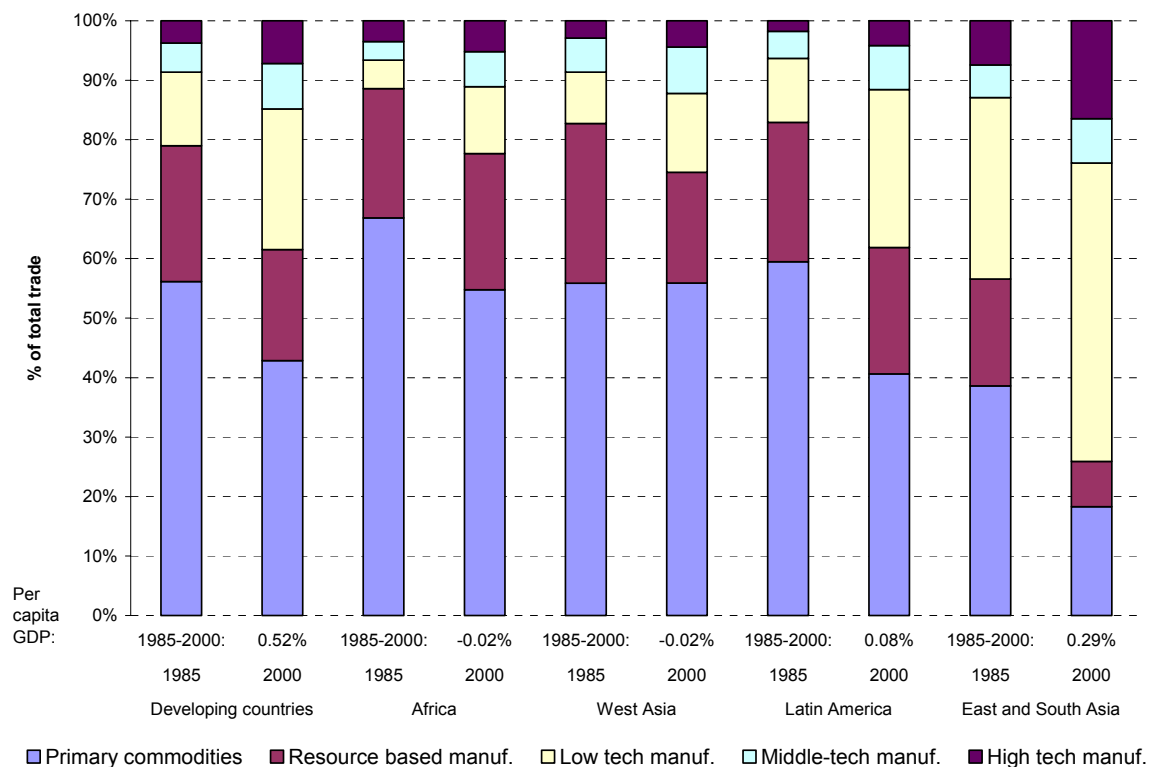
B. NIE in Asia excluding China



Source: Author's calculations based on UNCTAD, Handbook of international statistics online.

Figure 3 shows that Africa and West Asia are lagging in terms of diversification. Latin America has now the structure East and South Asia had in 1985. Primary products and natural resource based manufactures represent now less than 25% of total exports for the latter region but still more than 60% for Latin America.

Figure 3
Trade specialization and growth



Source: Ocampo and Parra (2005a).

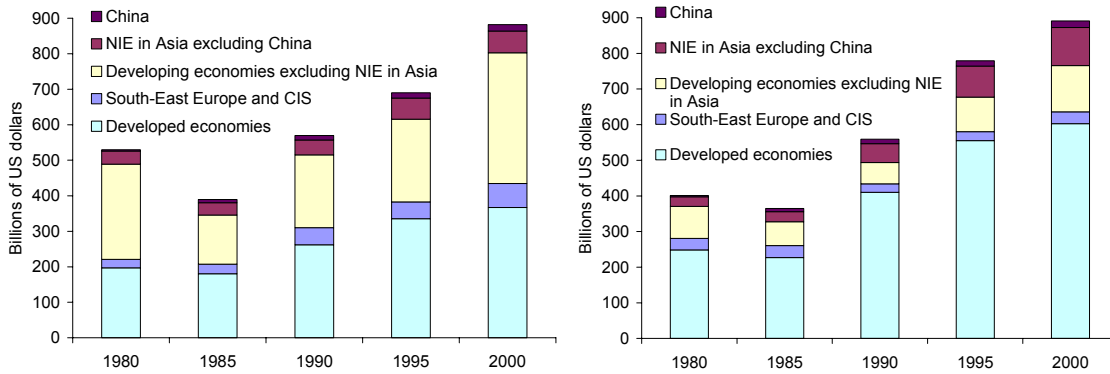
According to UNIDO (2002), middle and high-tech products represent more than 60% of world total manufacturing exports, mainly due to the dynamic growth of high-tech exports. This comes intertwined with the growth of the integrated production systems of multinational firms, which have split out production chains among different locations and countries (UNCTAD, 2002). Moreover, although the direct and indirect import contents of manufactured exports of developing countries are generally high, and have been rising in recent years, the capacity to capture certain activities (such as assembly tasks) may not be associated with high growth (UNCTAD, 2002). This depends on the relationship that the country establishes with FDI: if the strategy to attract FDI is not focused in creating assets (human resources and infrastructure), but in offering special incentives to multinational investments, the process can ultimately be counterproductive (Mortimore and Peres, 2001).

Figure 4

**Primary products and natural resource based manufactures
Exports composition by country group**

A. Primary products

B. Natural resource based manufactures



Source: Author's calculations based on UNCTAD, Handbook of international statistics online.

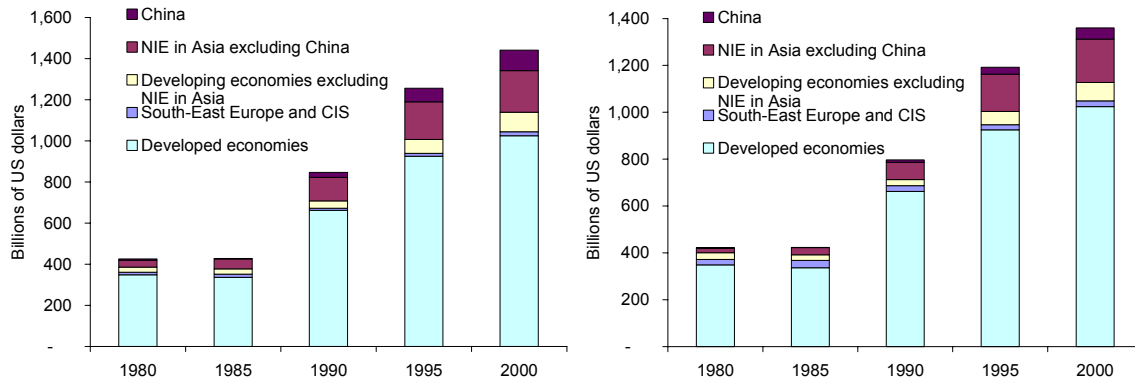
Primary products and natural resource based manufactures exports were particularly affected by developing countries crisis in the 1980s. Almost all the other regions gained market share in primary products, relative to developing economies excluding NIE in Asia, during that period. Only by 2000 had that region recovered its traditionally important market share in this sector. Developed economies, but also NIE in Asia's economies, profited to widen their diversification towards processed natural resources.

Figure 5

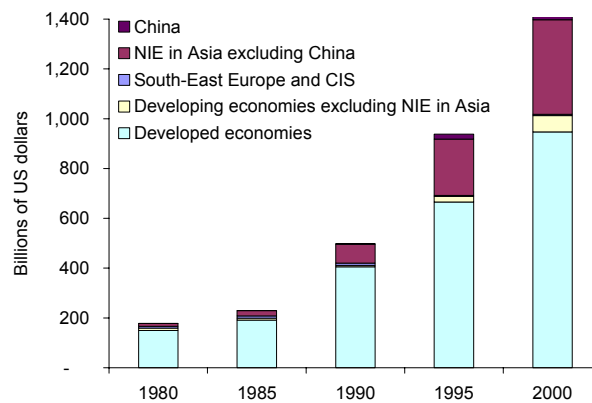
Non resource based manufactures exports composition by country group

A. Low tech manufactures

B. Medium tech manufactures



C. High tech manufactures



Source: Author's calculations based on UNCTAD, Handbook of international statistics online.

As Figure 5 shows, growth in non-resource based manufactures in the last 15 years has been impressive. High tech manufactures was the sector that grew and change in composition the most, going from less than 200 billion dollars in 1980 to around 1.400 billions in 2000. Developed countries share went from 85% of the total in 1980 to 65% in 2000, while NIE in Asia share went from around 5% to 30% in the same period. Low and medium tech manufactures exports increased more than three fold in the same period, but composition stayed more stable, with developed countries share being stable around 70% during the whole period.

III. The manufactures-manufactures terms of trade debate

According to Mayer (2003, pp.1), “the rapid development of the NIE’s in East Asia over three decades was associated with rapid growth in exports of manufactures to

developed countries. Some commentators have recommended that other developing countries follow the development path pioneered by these countries and direct their economies towards large-scale exports, in particular of labor intensive manufactures to developed countries”. I would argue, against those commentators opinion, that this has not been the path pioneered by those countries. What NIE cases actually show is that the important part is not really what you export, but to begin the learning and productive process entailed and then move to better quality exports. Path dependence, generated by dynamic economies of scale, reflects the existence of links between technological learning and production experience. As Mayer (2003, pp. 2) states, “the catching up of the NIEs to the income levels of developed countries... has been closely linked to a continuous upgrading in their product and export structure beyond primary commodities, basic apparel and low-grade assembly”.

The recommendation of specializing in exporting labor-intensive manufactures has other shortfalls. The fallacy of composition or adding up problem is one of them. Mayer (2003) reviewed the literature on the fallacy of composition with an emphasis on labor-intensive manufactures. In his words, “the fallacy of composition or adding-up problem means that what is viable for one small exporter acting in isolation may not be viable for a group of exporters acting at the same time: if all, in particular large, developing countries try to substantially increase exports of labor-intensive manufactures, there will be a risk that they encounter rising protective resistance from developed countries and/or that the terms of trade decline to such an extent that the benefits of any increased volume of exports is more than offset by losses due to lower export prices”.

His review of studies, based either on CGE (computable general equilibrium) simulation models or statistical analysis of the manufactures terms of trade, indicated a potential fallacy of composition problem in labor-intensive manufactures, where competition among different groups of developing countries for export market shares may constitute a new form of the fallacy of composition. The likelihood of a country that exports labor-intensive manufactures to become subject to the fallacy of composition rises with the increasing integration of several strongly populated low-income countries

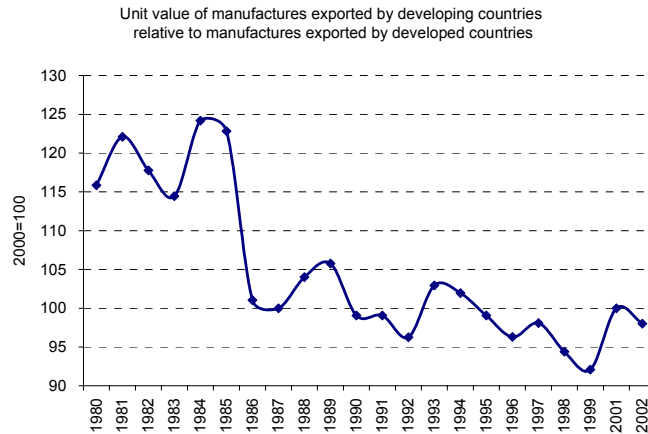
into world markets, while it declines with continuous structural change and favorable aggregate demand conditions particularly in developed and the advanced developing countries.

Thus, he circumscribed the “terms of trade pessimism” debate in this context as a further version of the fallacy of composition argument⁶. Sarkar and Singer (1991) were one of the pioneer studies on manufactures-manufactures terms of trade. They found evidence of a drop (of 1% per annum) in the unit value of manufactures exported by countries in the periphery relative to those in the center, for the period 1970-1987. They show that there is evidence to suggest that the double factorial terms of trade deteriorated even more, due to the widening gap in the growth of labor productivity in manufacturing industry between the center and the periphery, and conclude that increasing diversification of peripheral exports out of primary commodities into manufactured products did not provide a real escape from the deteriorating terms of trade with the center.

Athukorala (1995) argued that this kind of study was potentially subject to “spurious regression” problems. He presented an analysis of the same UN series, on the lines of Ocampo and Parra (2003), showing that using a DS model, more appropriate to the structure of the data, the trend rate turned out to be statistically insignificant. He also criticized the inclusion of non-ferrous metals as manufactures and showed that the apparent weakening in the manufactures terms of trade of developing countries virtually disappears when the analysis is done on data that excludes non-ferrous metals. As can be observed in Figure 6, the data since 1980 don’t appear to have a trend, but there appears to be a negative change around the mid eighties that, as the series are I(1), has persisted over time and implies that developing countries manufacture relative unit value are now 20% below what they were in 1980.

Figure 6

⁶ The others are: i) an early version emphasizes protectionist tendencies in developed countries, ii) a more recent version focus on the elasticity of export demand from a partial equilibrium point of view and iii) a version that highlights the general equilibrium nature of the fallacy of composition.



Source: Author's calculations based on UN (2003).

Further empirical work cited by Mayer (2003, pp.14) dismissed Athukorala's criticisms, giving support to the "terms of trade pessimism". In short, studies that treated the developing countries as a homogeneous group found that there was a tendency towards a weakening developing country manufactures terms of trade. On the contrary, subsequent work of Athukorala and others, focusing either on different groups of developing countries or on individual NIEs, have shown that this is not a general problem for all developing countries.

Berge and Crowe (1997), for example, analyze the case of the Republic of Korea and conclude that one group of developing countries might be able to improve the terms of trade it face with respect to trade with other developing countries by shifting its exports into manufactures of an intermediate level of relatively higher value and skill-intensity in production than the basic manufactures and commodities exported by developing countries in general. Maizels, Palaskas and Crowe (1998) show that the alleged deterioration in the NBTT since 1980 has been significantly less for the East Asian newly industrialized countries (NICs) and Asian near-NICs than for Latin America and other developing regions. These authors observe that, "this difference may well reflect, inter alia, the higher proportion of technology-intensive goods in manufactures exports from the NICs and near NICs than in exports from other regions".

Mayer (2003) argues then that there is no conclusive evidence on how the manufactures terms of trade of developing countries as a group have moved. By contrast, he states that it appears that different groups of developing countries have experienced considerably different developments in their manufactures terms of trade with the adverse effect being most pronounced for developing countries whose manufactured exports are composed largely of labor intensive goods. He goes further to say that this might indicate that the fallacy of composition has moved, at least in part from being an issue between developed and developing countries to one between different groups of developing countries.

At this point it is clear that this is again a discussion about the need for industrialization efforts, as was the discussion about commodity terms of trade. What Athukorala and the other authors that study the NIE cases are really defending is not that there is not a declining trend, but that, in any case, even if there is one, this does not exclude the possibility that some individual countries might do well in manufacturing for export and achieve significant terms of trade gains. Should the rest of developing countries just passively witness the NIE's catch-up? Or can they learn from this experience and profit from the opportunities that standardized manufactures bring for them as a way to prepare themselves to move up in the technological ladder in the long run?

IV. Standardized manufactures

Vernon (1966) argued that there is a product cycle in which new products are consumed and produced first in developed economies and later on, only after they have gone through a standardizing process and are then considered mature products, they are produced in less developed countries. In what was then a speculation about future industrial exports from less developed areas, he established a set of economic characteristics for the products which production could eventually be transferred to less developed economies. Those were: i) a production function that requires significant inputs of labor, ii) products with a high elasticity of demand for the output of individual firms, iii) a production process that doesn't rely heavily upon external economies, iv)

products which could be described by standardized specifications and which could be produced for inventory without fear of obsolescence, and finally v) high-value items capable of absorbing significant freight costs.

In those days, there were not many examples of this kind of investment patterns in the less developed countries, but nowadays, multinational corporations have spread it all over the world, going even one step forward with the new systems of integrated production, that subdivide each product production in several parts that can be located in distant areas from one another. As we will see in the next section, this has important consequences in terms of economic growth potential of exports.

Feenstra and Rose (1997) develop a procedure to rank-order countries and commodities using disaggregated American imports data. They found strong evidence that both countries and commodities can be ranked, consistent with the “product cycle” hypothesis. They also investigate the relationships between the country rankings and economic growth rates and productivity levels. Their rankings turned out to be closely linked with both productivity levels and fast growth rates. Countries which are “advanced” in the sense that they export commodities early, also tend to have both high productivity levels and fast growth rates.

Jovanovic (2004) models the product cycle and explains how it relates to world inequality. Contrary to Vernon’s (1966) idea that the product cycle arises because firms in rich places sell to the world’s richest and most demanding customer, and because in rich places labor is the most expensive and capital-intensive technology is more profitable, Jovanovic argues that it arises instead because technologies are product specific. New products are more high tech and demand more skills to make them. The people using the best technologies will then want to raise their skills relative to those of other people. Thus the product cycle and inequality both have their origins in the complementarity between technology and skill.

The purpose of this section is to identify the products that can be considered now as “standardized” or mature in the product cycle framework. The particular (and arbitrary) definition used here is that they have been already mastered in the NIE of Asia countries and are now spreading to the rest of developing countries. Lall (2001, pp. 122-23) presented a classification of manufactures in the SITC rev 2, according to the level of technology employed in the production. Using the UNCTAD Handbook of Statistics online data I replicated this classification for two groups of developing countries, as percentage of world exports: the NIE of Asia and the rest of developing countries. I assume that the standardized manufactures are those that 1) have been mastered by the newly emerging economies of Asia (this group represents 20% or more of world exports in 2000) and 2) have begin to spread to the other developing countries (this group represents 5% or more of world exports in 2000).

Using this methodology I identify the group of products presented in Table 1. As expected, these are products from the garment industry, the computer and information technology industry and, are frequently produced in “maquila” or assemblage industries in developing countries. There are also some resource based manufactures with low value added. In these standardized manufactures, producers are likely to be organized in strong monopolistic firms and producer organizations (as in the North defined by Sarkar, 1992), multinational corporations with lobbying power, while labor is still offered as a low cost factor in developing countries. This is a structure similar to that argued by Prebisch (1950) for traditional commodities versus manufactures produced in developed countries. In effect, they are likely to share two out of four reasons for the long-run deterioration in the NBTT between primary products and manufactures summarized by Athukorala (2000, pp. 90): technological superiority of developed countries and the control exercised by multinational enterprises based in these countries on the use of sophisticated manufacturing technology, and monopolistic market structures in developed countries combined with competitive conditions in both commodity and labor markets in developing countries.

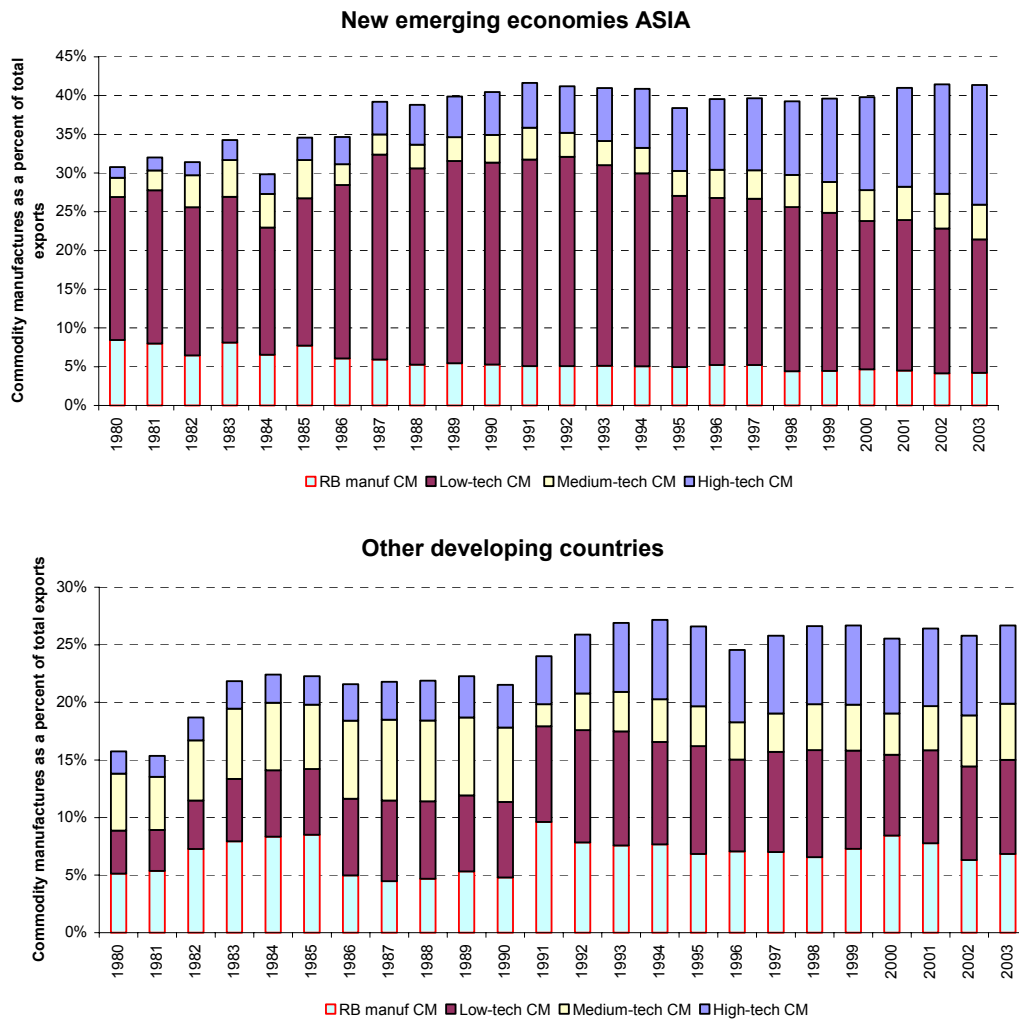
Table 1
Standardized or “commodity-like” manufactures

COUNTRY_GROUP		N Emerging E: Asia		Other dev countries	
SITC		1980	2000	1980	2000
Resource based	037 Fish etc prepd, prsrvd nes	15.0	45.0	18.0	15.0
	056 Vegtb etc prsrvd, preprd	19.0	24.0	8.0	12.0
	323 Briquettes, coke and semi-coke	0.0	39.0	1.0	9.0
	334 Petroleum products, refined	7.0	20.0	37.0	30.0
	424 Other fixed vegetable oils	69.0	74.0	15.0	9.0
	431 Procsd animl and veg oil, etc	15.0	35.0	3.0	9.0
	634 Veneers, plywood, etc	29.0	30.0	7.0	8.0
	635 Wood manufactures nes	17.0	21.0	6.0	8.0
	661 Lime, cement and building prdts	13.0	21.0	12.0	18.0
	685 Lead	1.0	23.0	17.0	13.0
	686 Zinc	2.0	21.0	14.0	14.0
	687 Tin	76.0	69.0	12.0	15.0
	Low-tech	611 Leather	13.0	25.0	21.0
612 Leather, etc, manufactures		16.0	32.0	12.0	12.0
651 Textile yarn		12.0	34.0	9.0	13.0
652 Cotton fabrics, woven		20.0	36.0	10.0	15.0
656 Lace, ribbon, tulle, etc		16.0	38.0	2.0	8.0
657 Spec textile fabrics, products		10.0	28.0	4.0	5.0
658 Textile articles nes		17.0	36.0	16.0	26.0
666 Pottery		12.0	39.0	3.0	6.0
679 Iron, steel castings unworked		3.0	24.0	2.0	5.0
696 Cutlery		17.0	34.0	4.0	7.0
697 Base metal household equip		16.0	37.0	4.0	9.0
831 Travel goods, handbags, etc		47.0	49.0	5.0	7.0
842 Men's outwear non-knit		29.0	34.0	9.0	30.0
843 Women's outwear non-knit		29.0	39.0	8.0	23.0
844 Under garments non-knit		50.0	47.0	10.0	23.0
845 Outer garments knit nonelastic		33.0	44.0	4.0	20.0
846 Under garments knitted		27.0	32.0	9.0	28.0
847 Textile clothing accessoris nes		24.0	41.0	5.0	14.0
848 Headgear, non-textile clothing		30.0	57.0	11.0	11.0
851 Footwear		22.0	37.0	6.0	14.0
895 Office supplies nes	8.0	25.0	1.0	5.0	
897 Gold, silver ware, jewellery	10.0	30.0	5.0	8.0	
899 Other manufactured goods	26.0	27.0	4.0	5.0	
Medium-tech	724 Textile, leather machinery	3.0	22.0	3.0	5.0
	743 Pumps nes, centrifuges, etc	18.0	47.0	2.0	7.0
	745 Non-electr machy, tools nes	6.0	23.0	4.0	7.0
	772 Switchgear etc, parts nes	7.0	30.0	3.0	7.0
	783 Road motor vehicles nes	9.0	26.0	3.0	8.0
	784 Motor vehicl parts, acces nes	5.0	42.0	2.0	9.0
	791 Railway vehicles	30.0	54.0	2.0	11.0
	793 Ships, boats, etc	23.0	25.0	9.0	12.0
High-tech	716 Rotating electric plant	4.0	22.0	3.0	8.0
	752 Automatic data processing equip	0.0	38.0	3.0	5.0
	761 Television receivers	13.0	28.0	2.0	25.0
	764 Telecom equip, parts, acces	13.0	22.0	5.0	7.0
	771 Electric power machinery nes	6.0	32.0	5.0	10.0

Source: Author's calculations based on UNCTAD Handbook of Statistics online.

Based on UN-COMTRADE data, in Figure 7 these commodity manufactures are presented as a percentage of total exports. This confirms that the strategy in emerging Asia has been to increase the share of high-tech commodity manufactures over time and reduce the share of resource based and low-tech commodity manufactures.

Figure 7
Commodity manufactures as a percent of total exports⁷



Source: Author's calculations based on UN-COMTRADE database.

⁷ There is a break in 1990 in other developing countries data that should correspond to the transition in Central and Eastern Europe.

V. Patterns of specialization and growth

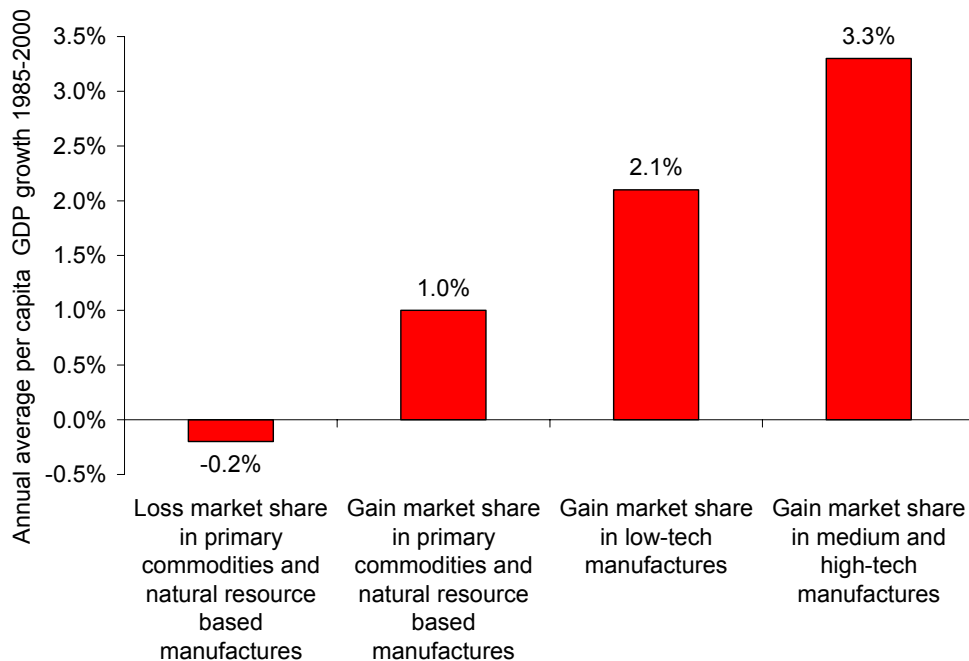
As long-term growth should be understood as the result of a sequence of sector-specific growth spurts, associated mainly with innovations, their intensity and the domestic linkages they generate, specialization patterns may be crucial to understand growth dynamics. In developed countries, innovations are associated to technological waves. In developing countries, they are more closely linked to the attraction of sectors, activities and technologies previously developed in the industrial world, which have historically involved processes of import substitution, export promotion or a mix of both strategies (Ocampo and Parra, 2005a). This is clearly consistent with the product cycle theory.

Lall (2001) argues that export structures, being path-dependent, have important implications for growth and development, with highest technology products having the greatest benefits in terms of learning and spillover effects, as well as being more dynamic in world trade. Palma (2004) expresses a similar view based on the different capacity that low- vs. high-technology products have in inducing medium and long term productivity growth in the economy as a whole, as well as their relative dynamism in world trade.

These relations have been used to explain East Asia's much superior growth performance. According to Lall (2001) and Palma (2004), among others, such performance is closely associated with their continuous effort both by the State and the corporate sector to upgrade export production capacities. UNCTAD (2003) provides a detailed analysis of the significant divergence in of the growth experience of developing countries along these lines. The East Asian economies have experienced a persistent industrialization drive. On the contrary, in Sub-Saharan Africa, the share of manufacturing in GDP fell in the 1980s and stabilized in the 1990s at relatively low levels. South America has experienced a premature deindustrialization, while Mexico and Central America avoided this trend by specializing in high-import intensive manufacturing exports, but with limited benefits in terms of growth (on this regard see also Palma, 2005).

The evidence presented in Ocampo and Parra (2005a) can be summarized in four major conclusions: (1) Most countries that have failed in increasing market shares are exporters of primary goods and natural resource-intensive manufactures. (2) Success in increasing market shares in these sectors has been associated to weak growth. (3) There are cases of countries that have extracted rapid or fair growth out of a specialization pattern based on low-tech manufactures, or by mixing it with natural resource-intensive goods, but most developing countries that have grown fast have been increasing market shares in mid or high-technology exports. (4) There is, in any case, a significant difference in the capacity of Asian countries to extract growth out of these sectors vis-à-vis Latin American, Central European and West Asian countries.

Figure 8
Patterns of specialization and growth



Source: Ocampo and Parra (2005a).

As Ocampo and Parra (2005a) show, there is a very large difference between the average growth of countries undergoing a transformation of specialization patterns into higher technology exports vs. those experiencing success in primary goods sectors (See

figure 6). This indicates that specialization patterns do matter. Past experience in low-income manufactures also has positive effects, as well as diversification into low-tech manufactures, but these effects are weaker than those of higher technology manufactures. No other factor among those explored in the growth literature regressions can explain differences as large as those captured by the effects of specialization patterns. However, these effects are important for middle-income countries and do not seem to play a role in determining the growth dynamics of low-income countries.

Ocampo and Parra (2005a) define two export strategies: increasing market shares in sectors where a specific country has an established position, and diversifying into higher technology products (the actual strategy of an individual country may involve a mix between them). The first strategy is widely available; the second will be available only to a limited number of developing countries. Individual countries can succeed in any of these strategies but, as a group, developing countries can only succeed in the first if developed countries lose market shares—and, obviously, if such a process is not hampered by protectionism in the developed countries—and if the demand is elastic enough. There may, of course, be simple technology goods and services that are also dynamic in world trade, including primary goods (some fruits, vegetables, cut flows) and services (tourism). These sectors would not generate such a dilemma. Agglomeration economies may not be absent in low-technology sectors, and thus the success of large producers (e.g., China) may thus take place, at least partly, at a cost to other producers.

The development impact of the strategy of a given country would depend not only on success in entering markets but also on the capacity to capture a high or small share of the value added in the production chain. This is in a sense obvious and even tautological, as GDP is nothing else but “value added”, but can have broader implications, as those activities with limited value added (e.g., maquila) are likely to be footloose. In the terms used by Palma (2004), unless the industries are firmly “anchored” in the domestic economy, their growth-enhancing capacity evaporates. Ocampo (2005) refers to these specialization patterns as “shallow”.

Multinational corporations are not creating links with the host country and in that sense are not delivering the growth profits to developing, but to developed countries where multinational headquarters are usually located. In this framework there are two options for developing countries to accelerate the transfer of mature industries. First, they should take profit from the interest of multinationals to ask for retributions from them. They could ask for example that multinationals support education and technology programs and in that sense profit from the complementarities between technology and skills (Jovanovic, 2004). Second, they should identify those products that are in the lowest stage of the product cycle and adapt their technology for internal use. Universities should be an important ally in that purpose.

I would like to be optimistic and say that, although the conclusions are not necessarily very encouraging for developing countries as a whole (Ocampo and Parra, 2005a), other developing countries could learn from the NIE's State and corporate sector substantive efforts to consistently upgrade export production capacities. Although diversifying into mid and high-technology exports is not available for many developing countries, it could be for some of them, Brazil for example. Even if most developing countries would have to compete in primary goods, natural resource or low tech manufacturing exports, where they are likely to face "fallacy of composition" effects, they should enter the export learning process, having always in mind the objective of upgrading export capabilities and more importantly, avoiding to stagnate around labor-intensive manufactures.

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