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From Export Promotion To Import Substitution; Comparative Experience of China and Mexico

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Abstract

Both Mexico and China have started export orientation in some industries, through assembly operations, based on imported inputs a couple of decades ago. The literature on industrialization, has discussed the questions of import substitutions and outward-orientation mainly as alternative routes to industrialization. In both cases, it is argued that "learning" would contribute to industrial development. Proponent of import substitution argued that import substitution contributes to industrial development through "learning by doing". Those in favour of free trade and outward orientation argue that trade contributes to the transfer of knowledge and technology.

This study is the first part of a twin study in which the authors attempt to shed some light on the comparative experience of the two countries in the light of the above-mentioned literature. The present study is devoted to the establishment of facts, while in the second study an attempt will be made to provide an explanation for differences in the performance of the two countries and the role played by their government in order to see whether the process, if successful, is replicable elsewhere.

China and Mexico the process of trade liberalization and development of export oriented industries started, following a period of pursuing import substitution strategy , more or less, at the same time-if not earlier in the case of Mexico. It will be shown in this study that both countries have managed to develop comparative advantage in many industries initiated through import substitution; but China has been more successful than Mexico in gradually increasing value added in export oriented industries by substituting domestic production for imported inputs in these industries.

The first section is devoted to a brief survey of the literature. In the second section, we will shed some light on the general trends in development of export promotion industries and general performance of the manufacturing sector in exports and production. The third section is devoted to the analysis of processing trade and value added in assembly operations through production of domestic components. In section four we will investigate the evolution of revealed comparative advantage in exports, production and assembly operation of traded finished goods and parts and components in order to shed some light on their future export prospects. The final section will conclude the study.

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Introduction

This study is the first part of a twin study which examines the comparative experience of China and Mexico in processing industries (assembly operations) mainly with the help of foreign direct investment (FDI). In this paper is devoted to the analysis of data to establish facts on the performance of the two countries in expansion of exports and value added through production of domestic parts and components. The second study will be allocated to the examination of the reasons behind the relative success of China in order to see whether it is replicable elsewhere.

After a period of pursuing import substitution, both China and Mexico embarked on establishing some export oriented industries through assembly operations based on imported inputs. The experience of China indicates that in certain industries, particularly data processing and other electronic industries, the country has gradually increased value added by substituting domestic production for imported inputs. While the process of export orientation in China and Mexico started more, or less, at the same time-if not earlier in the later case, Mexico has not been as successful as China in this respect.

The study will be undertaken taking into account the debate in the literature on trade and industrial policies. The literature has discussed the questions of import substitutions and export promotion or outward-orientation[1] mainly as alternative routes to industrialization. In both cases, it is argued that "learning" would contribute to industrial development. Proponents of import substitution argue that import substitution contributes to industrial development through "learning by doing". Those in favour of free trade and

outward orientation argue that trade contributes to the transfer of knowledge and technology.

The first section is devoted to a brief survey of the literature. The second section will briefly explain the process of liberalization of trade and FDI and review the comparative performance of exports of manufactured goods, MVA, GDP and a number of other macroeconomics variables. The third section is devoted to the analysis of processing trade and development in value added in assembly operations through production of domestic components. In the fourth section we will study the evolution of revealed comparative advantage $(CA)^2$ of the two countries in exports, assembly operation and production. of traded finished goods and parts and components in order to shed some light on their prospects in the future. The final section will conclude the study.

I. The literature on industrialization *and "learning"*

The literature on trade and industrial policies has regarded import substitutions and export promotion/outward-orientation mainly as alternative industrial strategies. Both strategies emphasize the role of learning in industrial development. The proponents of import substitution strategy argue that it contributes to industrialization through "learning-by-doing. By contrast, those in favour of export promotion believe in contribution of "learning through trading". The basic difference between the two is that the first group favour government intervention, while the second one argues in favour of free trade and market-oriented development.

Raul Prebisch (1950) introduced the theory of import substitution strategy in late 1940s- early 1950s. He emphasized the need for industrialization of primary commodity

exporters because of his belief, based on the results of his studies, that the distribution of the gains in trade in primary commodities was unfavourable to exporting developing countries. Accordingly, the terms of trade of these products suffered from secular declines against manufactured goods imported from developed countries. Moreover, the improvement in productivity in primary products, he argued, would benefit the importing countries, rather than the exporting developing countries. Further, he thought Government intervention was required for industrialization to support infant industries which face competition with industries which had been already established in developed countries. He believed the market forces alone would not allow a developing country to catch-up with developed countries. Prebisch initially did not regard import substation a step towards export expansion. Nevertheless, in his report to UNCTAD I, he applied the concept of infant industry also to export activities by recommending selective subsidization of exports. Finally, in mid-1980s he emphasized two features of his theory which are closely relevant to our argument. One is the importance of indigenous technology, which implicitly refers to the crucial significance of "learning by doing" although he did not elaborate on it. The other one is his reference to the need for a mixture of export promotion and import substitution to increase the domestic value added in export activities[3].

The process Prebisch had in mind in the evolution of an industry was import substitution, stimulation of exports and further increase in domestic value added through substitution of imported inputs, intermediate products and subsequently capital goods. Some scholars in fact regard import-substitution a pre-requisite for export promotion in industries which are characterised by the economies of scale (Krugman, 1984) and /or

external economies of learning (Young, 1991). Some others, argue for the lack of demarcations between import-substitution and export promotion; while in any industry import substitution precedes export promotion, a mixture of import-substitution and export promotion may be followed in various industries in each point in time (e.g. Streeten, 1972 and 1982., Singer and Alizadeh 1988, Chang, 1993, Shafaeddin 2005.a). This is in fact, the process through which the Republic of Korea and Taiwan Province of China went through in their industrialization. In other words, Although Prebisch referred to the increase in domestic value added of exports, what he did not consider was the reveres situation in which a country could start with a process of export promotion in some industries before increasing value added in that industry.

The neo-liberals are advocators of free trade, export promotion, or outward-looking, strategy as an alternative to import-substitution, or inward-looking strategy[4]. They range from scholars (e.g. Krueger,1974, 1978 and 1998, Greenaway et al.1998, Balassa, 1980, Bhagwati, 1978); main international financial institutions (e.g.World Bank 1987 and 1993, Papageorgiou et al. 1990) and the so-called Washington Consensus (e.g. Williamson, 1990). The trust of their argument is that trade provide a channel for the transfer of knowledge and technology, or learning through trade. The theoretical foundation behind the neo-liberal argument is basically the static comparative advantage theory although some lip service is provided to the dynamic theory. Accordingly, a country concentrates on exporting what it already produces, not on the development of what it will be able, or wish, to produce and export through developing dynamic comparative advantage (see e.g. Cline, 1983, Amsden,1989 and 2001, Gomery and Baumol, 2000, Shafaeddin 2005.b).

An important criticism of both import substitution and export promotion is that they did not contribute much to learning:

> The principal reason for the failure of import substitution was that, as practiced, it created an environment that discouraged learning[5]. The outward-oriented strategy, on the other hand, fails to appreciate that learning requires conditions that are essentially internal and depend on the basic characteristics of the society. This failure means that outward orientation as such needs substantial qualification and redirection (Bruton, 1998:903-4).

A reason for the lack of sufficient learning in import-substitution, according to Bruton, was that it was assumed that "once the structure of the economy changed, learning would occur automatically and resolve the difficulties" (Ibid: 914). But the learning process did not emerge as it does not occur automatically. Efficient government policies were required. Similarly, in the case of export promotion strategy:

> Studies of knowledge accumulation-especially the ideas of tacit knowledge, on the job learning, learning by doing and by using-combined with studies of technological change- in individual firms and industries offer strong evidence that simply exporting is not sufficient to result in or to substitute for the creation of a strong indigenous learning process (Bruton, 1998:930)[6].

Once again, under export promotion strategies also the transfer of technology and knowledge does not take place automatically. Not only, initial conditions, history, culture, institutions, but also *efficient policies* as well as their effective implementations are, *inter alia*, essential for the materialization of learning (Ibid:926 and 931). In both cases, not only the firms, but also the government has to learn; "searching and learning" by both firms and governments are fundamental. The government has to learn to design, implement and correct policies over time.

In nutshell, learning and knowledge accumulation are important for industrialization and development and government policies should address these issues actively (Ibid: 933). The theoretical discussion of the role of government policies in

learning and the actual policies and measures taken by the two governments is the subject of a separate paper as mentioned earlier**.** In this paper, we will study how things have evolved. In other words, to what extent assembly operation in processing industries has been upgraded towards production by increasing domestic value added? Which country has learned to upgrade its industrial structure? Meanwhile, we will also examine development, in more recent years, in comparative advantage of the two countries in capital/technology products which had been initiated through import substitution and became subject to trade liberalization. Let us first say a few words about the general export and growth performance of the two countries during the period they have undertaken export promotion through processing industries.

II. Historical background and comparative performance

There are some similarities between Mexico and China in terms of timing of opening up their economies to international trade; however, there are a lot of differences in their export and growth performance. So are the results of their attempts in economic liberalization and attraction of FDI. Both countries started opening-up their economies in foreign trade and FDI, more or less the same time. In its economic and trade liberalization, in fact, Mexico has far exceeded China, to the extent that it has been regarded the main champion of trade liberalization and economic reform in general (ECLAC, 2002)**.** The country started trade liberalization in 1984. In 1986 it joined GATT and began deregulation of FDI which was further intensified in 1989, 1993 and 1999 when FDI in services was also fully liberalized. In 1988, the range of import duties was reduced considerably. The NAFTA Agreement came into effect at beginning of 1994; in 2001 NAFTA tariff rates were applied to a large number of import items originating from other countries. During 1990s, Mexico

also signed free trade agreements with 5 Latin American countries followed by similar agreements with EU in 2000 and Japan in 2004.

China's opening to foreign trade and FDI started in early 1980s, when it also launched four special economic zones for export processing with the involvement of FDI, after some internal reform of the domestic economy which began in 1979. Reforms of China's State Enterprises started more or less the same time i.e. in 1983 and have intensified since1994. Further reforms in trade, financial, capital and labour markets continued in 1980s and 1990s (see Kojima1990, Hiddo 1999, JP Morgan1999 and Seckington 2002).

We will illustrate the case of Mexico in more details than China, as the performance of the former has been less strait forward than the latter requiring more attention. Mexico received significantly greater FDI than China until around 1990 not only in relation to its GDP but also in absolute terms (tables 1 and A.1). In both countries export processing zones were mainly responsible for export expansion. During 1980s and 1990s, Mexico showed considerably faster expansion of exports of manufactured goods than China (table 1). Mexico started with export processing zones much earlier than China. The share of Maquiladoras in exports of manufactured goods of Mexico was already 45 per cent in 1980, and it increased to over 55 percent in 2000 and 55.6 per cent in 2006 (table A.2)[7]. In the case of China, the share of "processed exports" in total exports reached over 58 % in 2005 (table 3).

Insert table 1 and chart 1 here

In terms of economic performance, however, there are significant differences between the two countries. Let us start with Mexico. First of all, in this country the growth of exports has not been associated with acceleration of growth of GDP. In fact, the relation between the two variables nearly collapses in 1980 (chart 1). During 1980-2000, while non-oil exports accelerated sharply as compared with 1960-80, the growth

rate of GDP sharply decelerated from 6.3 per cent for 1960-1980 to 1.1 per cent in 1980s and slightly over 3 per cent in 1990s despite over 8 times increase in FDI between 1980 and 2000 (see table A.1). Secondly, over 1980-2000, the lack of nexus between the growth of manufactured exports and MVA is also clearly evident (see table 1). Thirdly, during 2000-003 both manufactured exports and MVA showed negative growth rates of -2.9 and -4[8], respectively, before picking-up slightly since 2004 when the world economic situation improved. Even then the MVA/GDP ratio, in current terms, continued falling reaching 17.8.percent for 2005, before picking up slightly in 2006, as compared with over 22 per cent in 1980.[9]Further, the prospect for high growth rate is in doubt as growth of investment was on average negative during 2000-2003 (-2.9) and the I/GDP ratio is not particularly high for 2004/5(table.1)[10]. Further, the nexus between export and GDP seems also to continue in the future (chart 1).

Fourthly, FDI seems to have crowded out national investment in the case of Mexico; despite significant increase in the FDI/GDP ratio, the investment/GDP ratio declined considerably between 1980 and 2004, particularly since 2000 (table A.1). In other words, the response of investors to economic reform and opening of the economy to FDI has been poor. The fall in investment/GDP ratio is partly due to the decline in public investment. The ratio of gross public fixed capital formation to GDP declined from 10.7 in 1980/81 to 4.55 in 2003/4[11]. Public investment declined even in absolute current terms from over $11.6 billions in 1981 to about $2.8 billions in in 1998 and in 2006 it stood at $4.2 billions[12].But, it must have also been caused by crowing out of national private investment. The ratio of gross private fixed capital formation to GDP was 14.7 in 2003/4 as against14.25 in 1980/81[13]. Considering the inclusion of FDI in this ratio, the national investment/GDP ratio must have fallen. In fact the gross private fixed capital formation in 2005/6 was15.2 billion dollars, as against15.1billions in 1980[14]. Thus contrary to the prediction of neo-liberals, the national private investors hardly responded positively to

liberalization Moreover, there is some evidence that there was also a shift from investment in productive activities to less risky investment such as residential construction (Shafaeddin, 2005.b: table3.3). The movements in the exchange rate, particularly currency shocks, were not conducive to investment in productive activities in non-*maquila* sector either (Shafaeddin, 2006:50-52).

In many respects, China's performance has been far better than Mexico. Although during 1980-2000, China showed lower growth rates of exports of manufactured goods than Mexico, unlike Mexico; its growth rate of exports of manufactured goods was accompanied with significant growth rates of MVA and GDP (table 1). As a result, according to the same table, it gained considerable increase in its shares of world exports and MVA (table 1). And China, in contrast to Mexico, has continued rapid expansion of exports, MVA and MVA/GDP ratio since 2000, after it joined WTO, despite the world economic recession of early years of the decade. Furthermore, FDI did not cowed out domestic investment; in fact, the I/GDP ratio increased almost continuously far beyond the increase in FDI/GDP ratio. Table 1 also shows that in the case of China, the trade balance ratio of the manufacture sector, (exports-imports)/exports, has improved significantly and continuously (table A.1). By contrast, while Mexico has shown some improvement in the corresponding ratio, it still remains negative to a significant magnitude. This is in fact, due to slow progress in increasing its domestic value added in processing industries.

III. Processing trade and the evolution of value added in assembly operations

Mexico has not achieved much in increasing domestic value added in its assembly operations. Table 2 provides the data on the evolution of the *maquila* export industry of Mexico for 1974-2006. Accordingly, first of all, there has been extremely rapid expansion of the sector in terms of the number of firms, number of employees and output particularly since the trade liberalization of 1980s. Secondly, there was a significant drop in the share of value added, particularly wages, in exports of the *maquila* sector. The drop in value added of the sector *per se*

may not matter much if the share of domestic input in production increases, i.e. the backward linkages of the sector with other domestic industries enhances. Nevertheless, according to the same table, the contribution of local inputs in exports has increased little. Thirdly, by contrast, the share of imported inputs in output of the sector has increased continuously to nearly 77 percent in 2004. And the picture does not seem to have changed much since then.

Insert table 2 here

The decline in the value added, in relation to exports, of the *maquila* sector has been far beyond what had been expected by the authorities and has not been confined to the *maquila* sector. Nevertheless, the situation was somewhat better in the non-*maquila* sector. The forecast of the authorities was that the export/value added ratio would increase from 10 in 1980 to 18 in 1995 for the manufacturing sector as a whole. The actual figures for the *maquila* sector were 635 in 1995 and 864 in 2000, respectively. For the *non-maquila* manufacturing sector, the ratio went up to 150 in 1995 before falling to over 100 in 2000. For the car industry, which is an old industry and operates in both sectors, the corresponding ratio increased from 8 in 1980 to 378 in 2000 (Palma, 2003:28-9).

The performance of *non-maquila* sector, which is mainly based on industries which had gone through import substitution, is a lot better than the *maquila* sector in terms of linkages with the domestic economy. Comparable data on value added of the *non-maquila* sector is not available. Nevertheless, some inferences can be made with the help of the alternative data shown in charts 2 and 3. These charts show for each sector the evolution , over 1980-2006, of the share of exports of manufactured goods to non-oil export, the ratio of export to intermediate imports and the ratio of trade balance to exports. Accordingly, for the *maquila* sector the share of the *maquila* exports (of (manufactured goods) in total non-oil exports has increased significantly over time. However, the ratios of exports to intermediate imports and the trade balance ratio [(exports minus imports of intermediate goods)/exports] of the sector show downward trends, despite some fluctuations. In other words, as expected the reliance on imported inputs in the assembly

operation has increased over time. Trade liberalization seems to have been an important contributory factor to such increase; the reduction in the trade balance ratios is visible with each trade liberalization episode (1984, 1986, 1994 and 2001-2006) as is clear in the same chart 2.

Insert charts 2 and 3 here

By contrast, for the *non-maquila* sector, the ratios of export/intermediate imports and the trade balance ratio are considerably higher at the end of the period than the initial period despite their declines since 1994 when the NAFTA Agreement came into effect. It is not clear whether or not the data on imports of intermediate goods for the *non-maquila* sector includes imports for the other sectors of the economy (including agriculture, construction, etc.). Nevertheless, if it does, our conclusion on the better performance of the *non-maquila* manufacturing industries will be strengthened.

The immediate and longer-run impact of trade liberalization on non-maquila sector is also interesting. According to chart 3, the immediate impact of trade liberalization of 1986 (accession to WTO) and 1994 (coming into effect of NAFTA), was a sharp increase in exports/intermediate imports ratio and in the trade balance ratio. In both cases however, the ratios fell after the liberalization. The reason for the immediate increase in the ratios is that industries which had developed supply capacities through import substitution could benefit from access to markets in other countries facilitated by the trade agreements. Nevertheless, subsequently, the trade balance ratio deteriorated due to the increase in import intensity of output and increase in imports of final products as a result of import competition. In fact, since 1994, the reliance on imports of components has also increased even for the *non-maquila* sector.

Unfortunately, comparative data on value added for China is not available to make similar analysis for the performance of the export processing industry of the country Available data on exports and imports for processing trade of the country for 1981-2005 period is shown in table 3. For the sake of comparison, we have also shown similar data for Mexico for selected year in table 4. Accordingly, the shares of processing trade in exports of manufactured goods in the

two countries are closed to each other in recent years. Nevertheless, in the case of Mexico, processing exports constituted an important share of total exports of the country already in 1980. In the case of China, it begins to pick up in late 1980s, but expanded very fast. The importance difference between the two countries is that in the case of China the trade balance of the sector (processing trade) was significantly negative until late 1980s, but it improved very fast until 1998, after a temporary decline in early 1990s, and remained more or less the same since then with some fluctuation. By contrast, in the case of Mexico the ratio was already high in 1980 and increased for a while, i.e until the accession of the country to WTO, but since then the trend has been downward. There was also a drastic decline in the ratio in 1995 with the entry into force of the NAFTA agreement.

In the latest year, the trade balance ratio of processing trade of China far exceeds that of Mexico. What are the prospects for the future? To shed some light on this question, we should investigate the trade in parts and components and the evolution of CA of these countries in exports as well as production of components and finished products.

IV: Trade in components and evolution of the pattern of competitive advantage[15]

What are the prospects for increase in value added of exports, in the assembly operations of China and Mexico? In the absence of readily available data on production, to shed light on this question**,** we will first briefly review the evolution of trade in parts and components of these countries. The data on trade, *per se,* however does not provide the whole picture, as will be explained shortly. Therefore, subsequently, we will study the evolution of the pattern of CA in exports and production of the two countries.

Trade in components

The data on trade in components for the two countries for the period 1992-2005 are shown in table 5. Accordingly, the relative success of China in the expansion of

exports of components is evident. China expanded exports of components much faster than Mexico throughout the period, particularly in more recent period after its accession to WTO i.e. during 2001/2-04/05 and the resulting trade liberalization. During this period, in the case of China while the rate of growth of exports accelerated sharply, that of imports decelerated. As a result the trade balance of parts and components of the country reduced after their increases over 1992-2002. By contrast, in the case of Mexico the trade balance has increased continuously. The superior capabilities in production of components can be also gauged by the comparative changes in figures of ratios of exports and imports of parts & components to total exports and imports of manufactured goods of the two countries as shown in the same table. In the particular case of Mexico while the share of parts and components in total exports in 2004/4 is hardly different from 1992/3, the corresponding ratio for imports has continuously increased.

Of course, the slower expansion of exports of components in the case of Mexico, i.e. the relative success of China in this respect may not necessarily be an indicator of China's relative success in the production of components. It is possible that Mexico's components were used more in the production of finished goods for exports or for sale in the domestic market. For the same reason, however, it is possible that China's capability in production of parts and components is underestimated. Exports of finished products could be the results of assembly operations based on imported inputs. It could also be the result of expansion of production of domestically produced components. In the absence of figures on production of components, we may examine the tendency in the comparative evolution of the pattern of CA in exports and production of components and finished products.

Indicators of RCA

To do so, we may use various indicators of Revealed Comparative Advantages (RCA) applied to the exports and imports of the related finished products and components at 3 digit level for which data are readily available. For this purpose we will apply the methodology used by Shafaeddin (2004) and Ng and Yeats (1999)[16]. When applied to exports the RCA formula would be:

$$R_x = [X_{ij}/X_j]: [X_{wi}/X_w];$$

Where R, i, j, w, x stand for RCA, product, country, world and exports, respectively. R is the ratio of the market share of a country (e.g. here Mexico or China) in an item, to market share of the country in total world exports.

- If R is greater than unity, it implies that the country has CA in exportation of the product.
- C_R,, change in R over a period (shown as the ratio of R for a period divided by R for a previous period), indicates whether the country is gaining CA in exports (when C_R is greater than unity) or losing CA (when C_R is less than unity).

Nevertheless, CA in export of a finished product does not necessarily imply advantage in production of that product as the finished product may be the result of simple assembly operation. The application of R to imports can distinguish CA in assembly operation and production although it does not measure the extent of the value added involved. When the RCA indicator is applied to imports the formula will be:

$$R_m = [M_{ij} / Mj] \div [M_{wj} / Mw];$$

where R,i, j, w and M stand for, RCA, product, country, world and imports, respectively. R is the market share of a country's (here Mexico's or China's) imports of an item, to market share of the country in total world imports.

- R greater (smaller) than unity for imports of a finished product implies that the country has disadvantage (advantage) in production of that product;
- C_R greater (smaller) than unity for finished products implies further loss (gain) in advantage in production of a product.
- By contrast, R greater(smaller) than unity for imports of a component implies that the country has CA in assembly operation (production of the component);
- C_R greater(smaller) than unity means further gain in assembly operations (production of component);

China's revealed comparative advantage

The indicators of RCA for main export products of China at 3 digit levels for the 1992/3-2004/5 are shown in tables 6. We have also shown the figures for changes in RCA for 2000/01-2004/5 in order to study the evolution in CA of the country after the trade liberalization due to its accession to WTO. The table covers export items whose individual share in total exports of the country is around one per cent or higher. According to the table, in 2004/5 China showed RCA in all products included in the table, except for transistors and valves etc. (SITC 776), electric apparatus such as switches (SITC 772) and non-electric accessories of machinery (SITC 749). Even for these products, particularly transistors, the tendency has been to improve RCA as shown by the indicators of change in RCA.

Insert tables 6 here

Main export items

The products shown in the table include 14 capital/technology intensive, mostly electronic and electric products, 12 labour intensive and 2 natural resource-based products. In fact, the first three items are electronic products which together account for over 23 percent of country's exports**.** Furthermore, changes in the performance of capital/technology intensive and labour intensive products over time are not the same. Generally speaking, during 1992/93-2004/5,

China has also gained CA in all of its capital/technology intensive products, mostly electronics and electric products, which include mainly finished goods (10 items) and 4 components and parts. The finished electronic products include, in order of importance of change in their RCA over 1992/3-2004/5, data processing (SITC 752), heating, cooling equipment (SITC 741), sound record, phonographs (SITC 763), Telecommunication equipments and parts (SITC 764), electric Machinery nes (SITC 778), household equipment (SITC 775), electric power machinery (SITC 771) and television receivers (SITC 761). Transistors and valves (SITC 776) and Parts and accessories for SITC 751 and 752 (SITC 759) switches etc (SITC 772) and parts and components of non-electric machinery (SITC 749) are main items of components which have gained CA over the same period. Base metal manufactures (SITC 699) is also an intermediate products with gaining CA over 1992/3-2004/5 period.

The electric/electronic products which gained comparative advantage over 1992/3-2004/5 (11 items) together accounted for over 40 per cent of the country's exports in 2004/5. In all these products, except SITC 775 and 778, the country has continued to gain significant advantage in exports during 2000/1-2004/5, after the accession, particularly for data processing equipment and the parts and components for electric products.

By contrast, the indices of change in RCA are less than unity almost for all labour intensive products (except for furniture, and women man-made fibber fabrics) for both 1992/3-2004/5 and 2000/1-2004/5 period indicating that these categories of goods have been losing ground in favour of capital/technology intensive products.

Electric and electronic products and other capital/technology intensive products, which constitute the bulk of products in which the country is gaining CA in exports, are both among demand dynamic (enjoy rapid growth of demand in international market) and supply dynamic (provide linkages with other industries). Hence, China seems to have a favourable pattern of exports. But has it also gained CA in production of finished capital/technology intensive products for exports and/or domestic sale? To answer this question we need to study RCAs for imports.

RCA applied to imports

We will first study the RCA indicators for main import items of the country. Subsequently, the evolution of RCA for imports of the main capital/technology export items in which China has shown RCA for exports. Further, in order to investigate whether the country has achieved CA in production of capital/technology items which do not figure among its main import items we will examine RCA in "other import" items. We are interested only in evolution in CA of capital/technology intensive items as they are products which contribute to the upgrading of production structure. After all, the country has had CA in labour intensive products.

Insert table 7 here

The data on indicators of import RCA applied to main import items of China, which together account for over two-third of imports of the country, are shown in table 7. Accordingly, first of all, intermediate products, including parts and components, (19 items out of 27) constituted the bulk of imports of the country[17] in 2004/5. In fact, the first seven items, with the exception of petroleum and optical instruments, consist of parts and components which together constitute about a third of total imports of the country[18] in the same year. Secondly, China has CA in assembly operation in all items of components, parts and intermediate products shown in the table with the exception of parts and accessories for automotive industries (SITC 784). Thirdly, the country's advantage in assembly operation has increased for most components shown in the table. Nevertheless, it has reduced its advantage in assembly operations (improved its advantage in production) continuously in 3 components and intermediate products (polymerization, etc, iron and steel plate and sheets, petroleum products) during 1992/3-2004/5. Nevertheless, after the accession to WTO, it has improved CA in production of 3 components and 6 other intermediate products. Among finished products, the country has CA in production in both data processing (SITC 752), and aircrafts (SITC 792) which includes also components). Further, over 1992/3-2004/5, it has continuously improved its advantage in production of SITC 764, 728 and 792. But

it has lost some advantage over time in SITC 752, perhaps due to the advance in technology thus the need for imports. Some of these items also figure among the main export items of the country.

Overall, China has been more successful in improving CA in production of main import items of intermediate goods, including components, than main finished products. How about main exported items?

Insert table 8 here

Table 8 shows the evolution of RCA indicators applied to imports of Capital/technology intensive items in which China had CA in exports 2004/5. Accordingly, the results are mixed. The country had CA in production of 4, out of 8 items of finished goods, in three of which it lost some advantage after the accession to WTO. On the other hand, it improved its advantage in two items (SITC 764 and 741) over time.

In the case of SITC 764, which includes both finished products and components, unfortunately, we can not calculate the RCA at 4 digit levels, due to the lack of necessary data at the world level, to separate the effects of finished products and components. Nevertheless, some inferences can be made with the help of available data provided in table **A.3.** Accordingly, it seems that the gain in CA is basically due to production rather than assembly operation. While growth of exports of both finished products and components accelerated noticeably during 2000/01-2004/5, growth of imports of finished products decelerated significantly. At the same time although the growth of imports of components also accelerated, the trade balance of components turned positive. Therefore, the growth of exports of finished products must have been based mainly on production of domestic components.

Regarding other parts and components, table 8 indicates that the same items in which the country has gained CA in exports are also those in which the country has advantage in assembly operation. This phenomenon is not however a paradox. The items shown are at 3 digit levels. It is possible that at more disaggregate levels (4 or 5 digits) some products which are imported for use in assembly operation are different from those items which the country exports. It is also possible

that they are components of different marks of the same products. What is clear, however, is that while the country is still engaged heavily in assembly operation, jugged by the indicators of RCA for finished products and components shown in tables 8 and 6, it has developed, or improved, CA in production and exports of some components noticeably..

So far we have studied main import and export items. How about those import items which do not appear as main imported items perhaps because the country has developed CA in their production?

To shed some light on this question, we have shown the indicators of RCA for other capital/technology items in table 9. Development in CA in these products is of our interest because they contribute to the upgrading of production structure. The table indicates that indeed, the performance of the country is highly impressive. In 2004/05, out of 21 finished items and 6 components, China shows CA in 15 finished products and 3 components. Furthermore, for the majority of the products included in the table (including some of those in which it does not still have CA in production) it has improved its CA in production even after the accession to WTO.

Insert table 9 here

In short, China has CA mostly in production of non-electronics capital/technology intensive products and in exports of assembled electronics products. Nevertheless, it has also reduced its disadvantage (improved its advantage) in production of components and finished items of electronics products, and some other intermediate goods particularly in more recent years. The non-electric products are basically produced by SOEs, not foreign firms, and are based on industries which were initiated through import substitutions, but must have reacted positively to gradual trade liberalization.

Mexico

Corresponding data on the indicators of trade and RCA for main exports and import items of Mexico at 3 digit product levels for the 1992/3-2004/5 are shown in tables 10 and 11. Accordingly, capital/technology intensive products constitute a higher proportion of total exports

than in the case of China. 16, 0ut of 26 items included in the table, are capital/technology intensive products which constitute nearly half of total exports of Mexico in 2004/5. 6 Resource-based products, mainly petroleum, constitute about 19 per cent of exports of the country which takes a higher proportion of total exports than the case of China. Only 4 low technology/labour intensive products appear in the list of main exports. Automotive products and electronics and electric products are among the first 10 items of non-oil exports which account for 19 % and 28 % of non-oil exports of the country in 2004/5, respectively.

Insert tables 10 and 11 here

In 2004/5, with the exception of for two components items (SITC 759 and 776) and refined petroleum, Mexico shows CA in exports of all products shown in the table, including four items of parts and components (SITC784, 772, 713 and 749). However, in contrast to China, the country has lost advantage in a number of finished capital/technology intensive items (11 out of 16) either over 1992/3-2004/5 period (7 cases), or during 2001/1-2004/5 (4 cases) or in both periods (4 cases). Moreover, unlike China, it has gained advantage in resource-based goods, except SITC 699) and labour intensive products (SITC821, 842) continuously during 19992/3-2004/5. Among parts and components, only SITC 784 (motor vehicle parts) has shown continuous gain in advantage over time. Some improvements are also noticed in the case of internal combustion piston engine (SITC 713) ,another automotive component during 2001/2-2004/5. Otherwise, all other items of components have lost CA either continuously over both periods (SITC 772,776) or in the latest period (SITC 759, 749).

In similarity with China, intermediate and parts and components constitute the bulk, 16 out of 26 items, of main imports of Mexico (table 11). Nevertheless, in 2004/5, Mexico had CA in production only in refined petroleum products and paper and paper board. Even in this case, the CA of the country in production has deteriorated over time. With respect to finished products, Mexico shows CA in production in two products passenger motor cars (SITC781) and medical and pharmaceutical products (SITC 541). Nevertheless, it has noticeably lost production

advantage continuously in the first product over 1992/3-2004/5, and in the second one over 200/01-2004/5. Furthermore, it has gained further CA in assembly operation in all other finished products included in the table except for three items in which its CA disadvantage in production has reduced during 1992/3-2004/5. These include base metal manufactures nes (SITC 699) electric machinery, etc. (SITC 778), equipment for distributing electricity (SITC 773) some of which also figure in main export items of the country.

The RCA indicators applied to imports of capital/technology intensive products which have shown CA in exports in 2004/5 are shown in table 12. Accordingly, passenger cars (SITC 781), TV receivers (SITC 761) and household equipments (SITC 775) are the only three items in which the country shows CA in production in 2004/05. In the later two cases, CA has also improved continuously over time, but the related RCA indicators of change are not as strong as those of China. In addition to two electronic products (SITC 778 and 773), in more recent period some improvement has taken place in non-electric components such as car components, (SITC 784 and 713), switch gear (SITC 772) and in electric power machinery.

Insert table 12 here

Regarding other import products, we have shown the necessary data in **table 13.** To be able to make the comparison with China easier, we have reported the products in the same order as the corresponding table for China (see table 9). It appears that there are minor differences between the two countries as far as CA in production of "other import" items is concerned. Overall, in 2004/5, Mexico has achieved CA in production of 15, out of 24 (62%) products shown in the table, which is slightly less than the corresponding figure for China i.e. 19 out of 27 (70%) (based on table 9). The Chinese superiority in this respect is basically due to better performance of China in finished goods. Moreover, in more recent years (2000/01-2004/5), China has performed better in terms of improvement in CA in production in 70 per cent of the number of products as against 63 per cent for Mexico.

Insert table 13 here

In both the cases, most of the products which show RCA indicators greater than unity, i.e. bear CA in production, are among those which had started during the import substitution era and survived trade liberalization well as they were near the state of maturity (for the case of Mexico see Shafaeddin, 2005.a:69-73)[19].

The evolution of CA in thee main export item of Mexico

We will examine in more details the performance of three main manufacturing export items of Mexico which operate in both maquila and non-*maquila* sectors together with their components. These are automotive products, automatic data processing equipments and office machines, and telecommunication equipments. The data for RCA indicators are readily available for the first two items as shown in table 14. But for telecommunication equipments we have to make some inferences due to the lack of the necessary data as mentioned earlier. We have included SITC 751 and 722 in the table, even though they do not figure among main export item, because they use parts and components which are also used for production of other items. According to table 14, there are some similarities and some difference in the performance of the two groups shown in the table. In both cases:

- The trade balance of the components declined (and became negative for 759) at the end of the period implying that the growth rate of their imports was significantly greater than the growth of their exports.
- Imports of components increased faster than exports of all items of finished products.
- Similarly, except for SITC 751, trade balance of finished goods was positive at the end of the period and the reliance on imports of finished products has increased.

In other words, achievement in gaining CA in production has been limited.

Insert table 14 here

However, the difference between the two groups is that on the whole, trade balance of both finished products and components were better for automotive products than that of the first group.

Moreover, in 2004/05, the automotive products show better indicators of both exports and production. Nevertheless, even in this case the only item in which the country shows a very strong and continuous gain in advantage both in production and exports is SITC (783) the value of exports of which is not very large. For more important automotive items, it has been losing advantage in production (SITC 782) and significantly in both exports and production for passenger cars (SITC781). Regarding passenger cars which is the most important manufacturing export item of the country one would have expected that the abolishment of the special programme for cars in 2004 should not have resulted in such a drastic decline in advantage in production as the industry has had long experience since its establishment. But it seems the sudden, rather than gradual, removal of support may have caused such a drastic loss in advantage in production and exports of finished automotive products. By contrast, production of components has reacted more positively to liberalization of 2004 than the finished products. Explanation of this phenomenon requires further investigation.

Mexico, has gained increasing advantage in exports of SITC 752 (automotive data processing products), but, unlike China, it does not have CA in production and has not been able to reduces its disadvantage in production of this group of products over time. The change in advantage in favour of assembly operation is particularly evident by the data on R and $C_{R,}$ for imports and exports of components (SITC 759). The only similarity with China is that in both cases the advantage in production has declined perhaps for the reasons explained earlier in this paper in the case of China. The country does not show CA in exports of office machines, despite its increasing advantage in production. In other words, the country did not use its advantage in production for expansion of exports the value of which declined over time.

Regarding telecommunication equipments, it appears that not only the growth rates of exports of both finished products and components have decelerated sharply in recent years (see table A.3), but also in contrast to the experience of China, the reliance of the assembly operation on imports of parts and components have increased. This is implied by the increase in the rate of

growth of imports of parts and components as well as the fact that the trade balance of parts and components have turned negative (Table A.3). The deceleration in imports of finished products must have been due to reduced demand as a result of slow-down in general economic activities of the country.

V. Conclusions

China and Mexico have developed some processing industries (assembly operations), particularly in electronics industries, based on imported inputs, for exports in recent decades. Meanwhile, both countries embarked on the process of trade liberalization after a period of pursuing traditional strategy of import substitution industrialization. In both cases the objective of the Government was to increase domestic value added in export-oriented industries by substituting domestically produced parts and components for imported inputs.

In this study, we have examined the comparative experience of these countries in achieving this objective. At he same time, we have examined the evolution, after their trade liberalization, of their industries which had been initiated through import substitution. To gauge on development in their competitive advantage in exports and production, we have applied, *inter alia*, the Revealed Comparative Advantage (RCA) indices to both exports and imports of both countries *a la* Ng and Yeats (1999) and Shafaeddin (2004)

One striking common features of China and Mexico is that both countries, particularly China, have developed competitive advantage in production of most capital/technology intensive industries which had been established during the import substitution era. In both cases most of these industries have also reacted positively to trade liberalization. By contrast, China has achieved better than Mexico in increasing

value added in export oriented industries. Mexico, like China, managed to expand its exports of manufactured goods rapidly during 198os and 1990s; but unlike China, its exports came to a halt in early 2000s before picking up slightly in recent years. By contrast, China has managed to continue expanding its exports of manufactured goods fast. More importantly, in the case of China, unlike Mexico, expansion of exports was accompanied with rapid expansion of manufactured value added in general, including value added in its processing industries. By contrast, the share of "retained value added" in the output of *maquila* sector has dropped significantly and the contribution of domestic inputs to production has increased little. Yet the reliance of the sector on imported inputs has continuously increased. The linkage of the non-*maquila* sector with the domestic economy of Mexico was significantly greater than that of the *maquila* sector at the end of the study period (2005/6). Nevertheless, the reliance of non-maquilsa industries, on imports has also increases since coming into effects of the NAFTA in 1995. By contrast, the trade liberalization resulting from the accession to WTO has not influenced manufacturing industries of China negatively. The trade balance ratio, (X-M)/X, of the processing industries of Mexico, which had been relatively high, has declined considerably after the accession of the country into WTO in 1987, particularly since 1995. By contrast, the corresponding ratio for China has improved rapidly until 1999 and remained more or less the same despite some fluctuations.

A similar observation is noted in the trade balance of parts and components (P&C) of the two countries. A better trade balance in P&C alone, however, would not necessarily indicate a better production capacity; P&C could be used partly in production of finished products for exports or domestic sale. Therefore, to gauge on future prospects

of the two countries in exports and production, we have applied the indicators of revealed comparative advantage (RCA) to main exports and import items of the two countries. To examine their potential for upgrading, we have also applied these indices to imports of other capital/technology intensive products. Both countries have shown RCA in finished capital/technology products and a tendency towards increasing exports of these items. Nevertheless, the evolution of their RCA was different. China has shown improvement in RCA in its exports of capital/technology intensive items, mostly finished products (10 out of 14), the bulk of which included electric/electronic products (11). These items accounted for over 40 per cent of the country's exports in 2004/5. When we applied the RCA indicators to main import items of the country and imports of capital/technology items in which the country showed CA in exports, it became clear that: the country has shown CA in assembly operation in almost all main items of imports of intermediate products and parts and components, except the components for automotive industries. Nevertheless, it has improved RCA in 6 intermediate products and 3 components (out of 19) and 3 (out of 8) finished products particularly after the accession to WTO. Moreover, it shows CA in production of 5 finished products (out of 8) for which it also have CA in exports. While advantage in production of declined for some of electronic equipments, it increased for some others. In short, while the country is still engaged in assembly operations in its main items of exports and imports, it has improved its RCA in production of finished goods and, in particular, components.

By contrast, Mexico's performance in achieving CA is not as promising either in production or in exports of its main export items. Unlike China it has lost CA in exports of the bulk of its main capital/technology export items (11 out of 16) over 1992/3-2004/5,

but gained competitive advantage in resource based and labour intensive products. Motor vehicle parts (SITC 784) is the only item of part and components with continuous improvement in CA in exports. Further, as far as CA in production is concerned, TV receivers and household equipments are the only two main export products, with sustained CA in production. Some improvement is also seen in car components, unspecified electric machinery (SITC 778), switch and electric distribution equipment gear in more recent years. The situation is not however comparable with China. Mexico has also shown declines in CA in production of three main import items, in which it had CA (passenger cars and pharmaceuticals and paper and paper board) either continuously, in the first two products, or in more recent years in the case of the last item.

We have also examined in more details the prospects for CA in production of finished goods and components of three main export items of Mexico. These are automotive, automatic data processing and office machines, and telecommunication equipments. It became clear that in two products the country has CA in both exports and production. One is road motor vehicle not specified (SITC 783) the value of exports of which is small; the other one is finished telecommunication products (SITC (764-7549) for which the CA in export has declined in recent years. Components of automotive products are the only item which has reacted to trade liberalization positively. Otherwise, its advantage in assembly operation has improved in all other items.

As mentioned earlier, an important similarity between the trade performance of China and Mexico is that both have developed CA in production of many capital/technology intensive which had been initiated through import substitution. Most these items have also reacted positively to the trade liberalization.

The results obtained raise a number of questions requiring further research? What explains better performance of China in export oriented (processing) industries in terms of increase in value added? Why these industries reacted better to trade liberalization in China than in Mexico? To what extent could difference in trade and industrial policies and Government treatment of TNCs in the two countries explain the divergence in their performance? Has product sharing at regional level contributed to the better performance of China? Some of these issues are subject of our research in the second paper.

Table 1: Comparative Economic Performance of China and Mexico (1965-2005)

	China						Mexico					
Growth rates	65-80	80-90	90-2000	2000-2006	2005	2006	60-80	80-90	90-2000	2000-2006	2005	2006
Manufacturing value Added	10.5	10.8	12.7	10.8	12.11	7.9	6.3	1.5	4.3	0.8	1.4	4.7
Gross Domestic Product	6.6	10.3	10.6	9.8	10.2	10.7	6.3	1.1	3.1	2.3	2.8	4.8
Gross Fixed Capital Formation	9.7	9.5	14	13.8	14.8	15.9	7.7	-2.7	4.1	3.28	7.6	10
Total Exports	14.7	12.8	14.5	27.4	28.5	27.2	17.3	5.9	16.1	7.33	14	16.7
Exports of manufactures		17.4	16.7	28.4	29.1	27.7	18.1	24.3	19.8	5.7	11	9.9
memeo:												
(Xman-Mman)/Xman. Initial period(%).a		-40.8	4.7	22.7	29.6	35.4		-603	-128.2	-11.2	-12.7	-12
Ratios	70/71	80/81	90/91	04/05	05/06		70/71	80/81	90/91	04/05	05/06	
MVA/GDP	34.4	39.5	32.8	32.9	32.1		23.1	22.1	20.7	17.9	17.9	
GFCF/GDP	24.5	28.4	27.1	41.4	41		19.0	25.6	18.3	19.5	19.7	
FDI/GDP		0.1	1.2	3.2	3.5		0.8	1.2	1.2	2.6	2.5	
Exports of Manufactures / Total world exports of Manufactures		0.8	1.9	8.3	9.9		0.24	0.18	0.8	2.2	2.1	
MVA / Total World MVA	3.7	2.6	2.5	9.2	9.8		0.93	1.6	1.1	1.6	1.6	

Sources: World Bank: World Development Indicators on-line, UNCTAD, *World Investment Repor*t, various issues

Notes: a. Beginning of the period

Table2: Indicators of M*aquiladora* Export Industry of Mexico (1974-2006)

	1974	1985	1998	2000	2001	2002	2003	2004	2005	2006	Ratios			
											1985/74	1998/85	2004/98	2006/98
No. of firms	455	729	3130	3590	3630	3003	2860	2810	2816	2810	1.6	4.3	0.9	0.9
No. of workers (1000)	76	218	1039	1291	1199	1071	1062	1115	1166	1202	2.9	4.8	1.1	1.2
Gross output ($billions)	0.01	1.3	445.1	669	659	692	794	938	1003	1139	120	341	2.1	2.6
Percentages in gross output:														
Local input	0.9[a]	0.7	2.2	2.4	2.6	2.9	2.5	2.4	2.7	2.8	0.8	2.4	1.1	1.3
Value added: of which	36.3	24.9	21.7	22.1	24.2	23.4	22.6	20.7	20.9	20.4	0.69	0.6	1.0	0.9
Wages	22.4	12.8	10.6	12.4	13.5	12.8	11.5	10.7	10.9	10.5	0.57	0.47	1.0	1.0
Others	13.9	12.1	11.1	9.6	10.8	10.6	11.0	10.0	9.9	10.0	0.87	0.8	0.9	0.9
Imported inputs	64.3	75.1	78.3	75.6	73.1	73.7	75.0	76.9	76.4	76.7	1.17	1.22	1.0	1.0
Retained Value	37.2	25.6	23.9	24.5	26.8	26.3	25.1	23.1	23.6	23.2	0.69	0.93	1.0	1.0

Source: INEGI, Mexico

a. 1975

Table 3: Evolution of processing trade of China (1981-2005)

Year	Processing trade ($100million)			Share (%)	
	X_p	M_p	$X_p - M_p$	X_p / X_m	$(X_p - M_{p)} / X_p$
1981	11.3	15.0	-3.7	5(a)	-32.1
1982	0.53	2.76	-2.23	n.a	-420
1983	19.4	22.7	-3.3	n.a	-17
1984	29.3	31.5	-2.2	n.a	-7.5
1985	33.2	42.7	-9.5	8.3	-22.2
1986	56.2	67.0	-10.8	n.a	-19.2
1987	89.9	101.9	-12	n.a	-13.3
1988	140.6	151.1	-10.5	n.a	-7.5
1989	197.9	171.6	26.3	8.8	13.2
1990	254.2	187.6	66.6	55	26.1
1991	324.3	250.3	74	58.2	29.1
1992	396.2	315.4	80.8	58.3	20.4
1993	442.5	363.7	78.8	58.9	17.8
1994	569.8	475.7	94.1	56.2	16.5
1995	737.0	583.7	153.3	57.9	20.8
1996	843.3	622.7	220.6	65.3	26.2
1997	996.0	702.0	294	62.7	34.8
1998	1044.5	686.0	358.5	65.7	34.3
1999	1108.8	735.8	273	63.3	33.6
2000	1376.5	925.6	450.9	61.5	32.8
2001	1474.3	940.0	534.3	61.5	36.2
2002	1799.3	1222.0	577.3	60.6	32.1
2003	2518.5	1629.0	8895	62.4	35.3
2004	3279.7	2216.9	1063	59.3	32.4
2005	4164.0	2740.1	1423.9	58.4	34.1

Source: Based on *China Statistical Yearbook, 2006*: tables 18-4 and 18-5
Notations: X_p= processing export; M_p= processing imports; X_m=exports of manufactured goods

a: 1980

Table 4: Evolution of processing trade of Mexico (1980-2005)

Year	Processing trade ($100million)			Share (%)	
	X_p	M_p	$X_p - M_p$	X_p / X_m	$(X_p - M_{p)} / X_p$
1980	25.2	17.5	7.7	45.3	30.5
1985	50.9	33.3	17.6	50.5	34.5
1986	56.5	43.5	13	43.8	23.0
1987	71.1	55.1	16	42.2	22.5
1990	138.7	103.2	35.5	49.8	25.6
1994	262.2	204.7	57.7	52.6	21.9
1995	311	261.8	49.2	47.3	15.8
2000	794.6	617.1	177.5	54.9	22.3
2005	974	756.8	217.2	55.6	22.2
2006	1118.8	875	243.8	55.1	21.7

Source: Based on Table A.2
Notations: as table 3

Table 5: Trade in parts and components of manufactured good; China and Mexico (1992-2005)

	92/93	97/98	2001/02	2004/05	An.av growth rates 92/3 04/5)	92/3 01/2	01/2 04/5
China:							
Value ($b)							
Exports	3.5	11.6	23.6	78	29.5	23.6	48.9
Imports	10.2	19.1	32	79.3	41.8	44	35.3
Balance	-6.7	-7.5	-8.4	-1.3			
Shares of components in[a] :							
Total exports	5.3	7.9	11	13.2			
Total imports	15.6	20.1	21.4	20.3			
Mexico:							
Value($b)							
Exports	6.4	14.8	23	29.8	13.6	15.2	9
Imports	6.6	19.6	30.6	37.8	15.7	18.5	7.3
Balance	-0.2	-4.8	-7.6	-8			
Shares of components in[a] :							
Total export	19.1	16.5	17.5	19.8			
Total imports	16.2	22.1	23	24.5			
Mimeo: balance of man. trade ($b):							
China	-5.8	46.7	47.1	160.9			
Mexico	-10.7	-5.3	-11.3	-18.5			

Source: Based on UN COMTRADE database
a: In total exports and imports of manufactured goods excluding chemicals

Table 6: RCA Indicators forMain Exports of China (1992-3/2004-5)

SITC at 3 digit levels	Share in country 2004-05	Share in world 2004-05	RCA 2004-05	Rank RCA 2004-05	Change in RCA 2004-05 / 1992-93	Change in RCA 2004-05 / 2000-01
752 Automatic data processing equip	10.05	2.78	3.62	14	18.680	2.398
764 Telecom equip, parts, acces	7.84	3.46	2.27	37	2.882	1.470
759 Office, adp machy parts, acces	4.03	2.04	1.97	47	4.792	1.744
845 Outer garments knit nonelastic	2.80	0.70	4.01	11	1.084	0.895
894 Toys, sporting goods, etc	2.72	0.66	4.12	10	0.919	0.816
776 Transistors, valves, etc	2.70	3.81	0.71	109	4.914	1.584
763 Sound recorders, phonographs	2.68	0.63	4.23	9	5.510	1.376
851 Footwear	2.44	0.57	4.25	7	0.819	0.774
843 Women's outwear non-knit	2.32	0.69	3.35	20	0.603	0.795
778 Electrical machinery nes	2.23	1.51	1.47	57	1.942	0.940
821 Furniture and parts thereof	2.16	1.01	2.15	40	2.006	1.154
775 Household type equip nes	2.00	0.69	2.88	26	1.723	0.959
842 Men's outwear non-knit	1.56	0.45	3.51	15	0.590	0.754
893 Articles of plastic nes	1.55	0.92	1.67	53	1.162	0.793
772 Switchgear etc, parts nes	1.43	1.44	0.99	88	1.767	1.091
871 Optical instruments	1.39	0.41	3.37	19	2.804	1.942
658 Textile articles nes	1.33	0.30	4.36	5	0.682	0.879
846 Under garments knitted	1.26	0.48	2.61	29	0.688	0.868
699 Base metal manufactures nes	1.15	0.84	1.37	68	1.255	1.048
653 Woven man-made fib fabric	1.15	0.36	3.18	22	1.771	1.271
848 Headgear, non-textile clothing	1.15	0.22	5.25	3	0.896	0.775
771 Electric power machinery nes	1.14	0.46	2.46	32	1.662	1.005
761 Television receivers	1.03	0.56	1.82	51	1.169	1.511
831 Travel goods, handbags, etc	1.01	0.24	4.28	6	0.753	0.749
786 Trailers, non-motor vehicl nes	0.97	0.23	4.23	8	2.269	0.718
652 Cotton fabrics, woven	0.97	0.31	3.14	23	0.648	0.923
749 Non-electr machy parts, acces	0.95	1.11	0.86	97	2.316	1.025
741 Heating, cooling equipment	0.92	0.68	1.35	69	14.997	1.591
Total above	62.93					
Total value of exports (billions USD)	678					

Sources: Calculated by the authors based on UNCOMTRADE

Table 7: RCA Indicators for Main Import Items of China (1992-3/2004-5)

SITC at 3 digit levels	Share in country 2004-05	Share in world 2004-05	RCA 2004-05	Rank on RCA 2004-05	Change in RCA 2004-05 / 1992-03	Change in RCA 2004-05 / 2000-01
776 Transistors, valves, etc	13.90	3.81	3.25	12	4.072	1.555
333 Crude petroleum	6.68	5.25	0.94	79	2.313	0.962
871 Optical instruments	4.45	0.41	9.56	1	19.251	3.524
764 Telecom equip, parts, acces	4.15	3.46	1.29	62	0.629	0.802
583 Polymerization, etc, prdts	3.20	1.53	2.21	28	0.820	0.660
772 Switchgear etc, parts nes	2.72	1.44	1.99	35	2.290	1.150
752 Automatic data processing equip	2.66	2.78	0.94	80	3.949	1.532
759 Office, adp machy parts, acces	2.64	2.04	1.35	59	2.687	1.097
281 Iron ore and concentrates	2.54	0.24	7.00	2	2.288	1.530
728 Oth machy for spec industries	2.38	1.06	2.36	26	0.572	0.934
674 Iron, steel univ, plate, sheet	2.19	1.07	2.13	31	0.795	0.702
778 Electrical machinery nes	2.11	1.51	1.43	57	1.640	1.065
334 Petroleum products, refined	1.68	3.09	0.58	112	0.580	0.849
874 Measuring, controlg instruments	1.50	1.17	1.32	61	1.222	1.090
287 Base metals ores, conc nes	1.40	0.44	2.86	19	2.370	1.121
682 Copper	1.40	0.60	2.42	24	1.135	0.800
582 Prdts of condensation, etc	1.27	0.72	1.76	40	1.479	0.904
222 Seeds for soft fixed oils	1.24	0.22	4.76	6	46.556	0.908
749 Non-electr machy parts, acces	1.20	1.11	1.09	71	1.229	0.999
513 Carboxylic acids, etc	1.16	0.33	3.27	11	2.828	1.042
784 Motor vehicl parts, acces nes	1.15	2.39	0.50	118	1.132	1.135
511 Hydrocarbons nes, derivtives	1.11	0.49	2.17	29	2.239	0.971
736 Metal working machy, tools	1.09	0.46	2.49	23	0.879	1.224
672 Iron, steel primary forms	1.05	0.66	1.55	47	0.402	0.596
512 Alcohols, phenols, etc	1.00	0.28	3.13	15	2.741	1.092
792 Aircraft, etc	0.95	1.30	0.87	84	0.661	0.909
251 Pulp and waste paper	0.94	0.27	3.13	14	3.534	1.043
total above	67.78					
Total value of exports (billions USD)	611					

Source: as table 6

Table 8: Evolution of RCA indicators of imports for main capital/technology intensive export items with RCA greater than unity in 2004/5(China: 1992/2-2004/5)

SITC	Products	RCA (2004-5)	Change in RCA 2004-5/ 1992/3	Change in RCA 2004-5/ 2001/2
A. **Products which also appear as main import item in table 7**				
	Finished products:			
752	Automatic data processing	**0.94**	3.94	1.53
764	Telecom.equipments parts and access.	1.29	**0.6**	**0.8**
778	Electric machinery nes.	1.43	1.64	1.055
	Parts & components:			
759	Office machinery parts and components	1.35	2.687	1.077
772	Switch gear etc parts nes.	1.99	2.29	1.15
776	Transistors, valves	3.351	4.07	1.55
B**. Products not included in main import items:**				
761	TV receivers	**0.04**	**0.14**	**0.80**
775	Household type equipments nes.	**0.27**	0.87	1.32
763	Sound recorders, phonographs	**0.35**	**0.61**	3.89
741	Heating. Cooling equip.	1.20	**0.81**	**1.0**
771	Electric power machinery nes.	1.64	1.43	1.12

Sources: As table 6

Table 9: RCA indicators for "other import items" of China (1992/3-2004/5)

SITC	Products	RCA (2004-5)	Change in RCA	
			2004-5/92-3	2004-5/00-01
Finished products:				
772	Tractors, non-road	0.04	0.9	0.76
783	Road motor vehicles nes.	0.09	0.13	0.40
782	Lorries, spec. motor veh.	0.09	0.08	0.61
762	**Radio receivers**	0.09	0.65	**2.59**
781	passenger cars	0.16	0.44	**1.80**
721	Agricul. mach.. Excl. tractors	0.20	0.34	0.55
751	Office machines	0.34	**1.32**	0.50
791	Railways vehicles	0.44	0.97	0.56
727	Food machinery, non-domestic	0.60	0.46	0.21
785	Cycles, etc, motorize or not	0.60	0.21	0.40
723	Civil engineer equip., etc	0.67	0.30	0.73
745	Non-electric mach. tools	0.79	0.79	0.82
773	Electricity dist. equip.	0.80	0.91	0.84
742	Pumps for liquids, etc	0.84	**1.79**	**1.20**
744	Mechanical handling eqiup.	0.91	0.81	0.94
774	Electro-medical, Xray equip.	1.11	1	0.70
743	Pumps nes, centrifuge, etc	1.17	**1.29**	**1.03**
718	Other power gen. machinery	1.29	**1.33**	0.38
736	Metal working mach.tools	2.49	0.88	**1.22**
737	Metal working machines nes	2.75	**1.26**	**1.21**
724	Textile , leather mach.	2.96	0.49	0.81
Parts and components:				
726	Print &bookbind. Mach.parts	0.27	0.71	0.69
714	Engins &motors nes	0.32	**1.56**	**1.63**
713	Internal comb.piston engine	0.55	0.71	**1.12**
716	**Rotating electric parts**	1.51	0.67	0.91
711	Steam boilers & auxil. Parts	1.72	0.49	0.30
712	Steam engines, turbins	2.36	**2.46**	0.90

Source: Calculated by the authors based on UN COMTRADE database

Table 10: RCA Indicators forMain Exports of Mexico (1992-3/2004-5)

SITC at 3 digit levels	Share in country 2004-05	Share in world 2004-05	RCA 2004-05	Rank on RCA 2004-05	Change in RCA 2004-05 / 1992-93	Change in RCA 2004-05 / 2000-01
333 Crude petroleum	12.33	5.25	2.35	11	0.843	1.617
781 Passengr motor vehicl, exc bus	6.28	5.02	1.25	41	0.896	0.632
764 Telecom equip, parts, acces	5.47	3.46	1.58	27	1.095	0.804
752 Automatic data processing equip	5.00	2.78	1.80	24	3.504	1.016
784 Motor vehicl parts, acces nes	4.50	2.39	1.88	22	1.315	1.216
761 Television receivers	4.48	0.56	7.93	1	1.348	1.001
782 Lorries, spec motor vehicl nes	3.44	0.90	3.80	5	3.338	1.006
773 Electricity distributing equip	3.43	0.59	5.80	2	0.671	0.925
778 Electrical machinery nes	3.40	1.51	2.25	12	0.880	0.977
772 Switchgear etc, parts nes	2.73	1.44	1.90	20	0.853	0.939
713 Intern combust piston engines	2.33	1.14	2.04	18	0.753	1.062
821 Furniture and parts thereof	2.18	1.01	2.17	15	1.904	1.070
699 Base metal manufactures nes	1.53	0.84	1.81	23	0.922	0.994
054 Vegtb etc fresh, simply prsrvd	1.53	0.36	4.22	4	1.022	1.118
874 Measuring, controlg instruments	1.44	1.17	1.24	42	2.155	1.244
872 Medical instruments nes	1.35	0.51	2.66	7	1.592	1.339
759 Office, adp machy parts, acces	1.29	2.04	0.63	91	1.243	0.802
716 Rotating electric plant	1.27	0.51	2.50	9	1.170	1.069
334 Petroleum products, refined	1.21	3.09	0.39	121	0.837	1.826
776 Transistors, valves, etc	1.18	3.81	0.31	137	0.566	0.879
893 Articles of plastic nes	1.18	0.92	1.27	40	0.936	1.045
842 Men's outwear non-knit	1.16	0.45	2.61	8	3.128	1.061
749 Non-electr machy parts, acces	1.14	1.11	1.02	55	1.246	0.958
112 Alcoholic beverages	1.02	0.47	2.16	16	2.407	1.131
771 Electric power machinery nes	0.95	0.46	2.04	17	0.604	0.719
775 Household type equip nes	0.94	0.69	1.35	35	1.026	0.791
Total above	72.75					
Total value of exports (billions USD)	201					

Source:as table 6

Table 11:RCA Indicators for Main Import Items of China (1992-3/2004-5)

SITC at 3 digit levels	Share in country 2004-05	Share in world 2004-05	RCA 2004-05	Rank RCA 2004-05	Change in RCA 2004-05 / 1992-93	Change in RCA 2004-05/2000-01
776 Transistors, valves, etc	5.58	3.81	1.30	58	1.049	0.772
784 Motor vehicl parts, acces nes	4.86	2.39	2.13	21	3.614	0.802
764 Telecom equip, parts, acces	4.69	3.46	1.46	47	1.069	1.150
772 Switchgear etc, parts nes	4.07	1.44	2.97	6	1.249	0.971
781 Passengr motor vehicl, exc bus	3.41	5.02	0.72	127	6.139	1.247
752 Automatic data processing equip	2.99	2.78	1.06	85	1.768	1.617
893 Articles of plastic nes	2.81	0.92	3.11	4	1.041	0.978
334 Petroleum products, refined	2.59	3.09	0.90	101	1.202	1.106
778 Electrical machinery nes	2.49	1.51	1.68	33	0.855	0.857
759 Office, adp machy parts, acces	2.47	2.04	1.26	60	3.572	1.711
699 Base metal manufactures nes	2.46	0.84	3.02	5	0.913	0.804
583 Polymerization, etc, prdts	2.43	1.53	1.67	34	1.447	1.125
713 Intern combust piston engines	2.17	1.14	1.97	24	2.379	0.972
749 Non-electr machy parts, acces	2.05	1.11	1.86	26	1.278	1.077
341 Gas, natural and manufactured	1.72	1.34	1.02	92	1.926	1.519
773 Electricity distributing equip	1.54	0.59	2.66	11	0.606	0.816
874 Measuring, controlg instruments	1.45	1.17	1.28	59	1.045	1.110
728 Oth machy for spec industries	1.35	1.06	1.34	55	1.043	1.028
541 Medicinal, pharmaceutical prdts	1.29	2.77	0.46	169	0.912	1.021
674 Iron, steel univ, plate, sheet	1.11	1.07	1.08	82	1.098	0.942
743 Pumps nes, centrifuges, etc	1.08	0.68	1.65	36	1.043	0.871
782 Lorries, spec motor vehicl nes	1.03	0.90	1.16	69	4.078	1.329
011 Meat, fresh, chilled, frozen	1.02	0.60	1.81	27	1.551	1.125
641 Paper and paperboard	0.98	1.06	0.95	98	1.427	1.218
684 Aluminium	0.95	0.75	1.26	61	1.304	1.370
582 Prdts of condensation, etc	0.95	0.72	1.32	57	1.262	1.042
Total above	59.54					
Total value of exports (billion USD)	209					

Sources: as table 6

Table 12: Evolution of RCA indicators of imports for main capital/technology intensive export items with RCA greater than unity in 2004/5 (Mexico: 1992/2-2004/5)

SITC	Products	RCA (2004-5)	Change in RCA 2004-5/ 1992/3	Change in RCA 2004-5/ 2001/2
A. **Products which also appear as main import item in table 11:**				
	Finished products:			
752	Automatic data processing	1.06	1.768	1.617
764	Telecom. Equipments & parts.	1.46	1.069	1.150
778	Electric machinery nes.	1.68	**0.855**	**0.857**
781	Passenger motor vehicles, excl. busses	**0.72**	6.139	1.247
	Parts & components:			
784	Motor vehicle parts and accessories	2.13	3.614	**0.802**
759	Office machinery parts and comp0.802onents	1.26	3.57	1.711
772	Switch gear etc parts nes.	2.97	1.249	**0.971**
749	Non-electric machinery; parts and components of	1.86	1.278	1.077
713	Internal combustion piston engine	1.97	2.37	**0.97**
B**. Products not included in main import items:**				
761	TV receivers	**0.53**	**0.45**	**0.63**
775	Household type equip.nes	**0.55**	**0.66**	**0.84**
771	Electric power machinery nes.	1.94	1.12	**0.95**
782	Lorries, special motor vehicles nes.	1.16	4.08	1.53
773	electric distribution equip.	2.66	**0.66**	**0.816**
716	Rotating electric plants	1.75	1.26	0.84
C. Products included in main imports but not in exports				
743	Pumps nes, centrifuges	1.65	1.04	0.871
728	Other machinery for special industries	1.34	1.043	1.028

Sources: Table 11 and the same sources

Table 13: RCA indicators for "other import items" of Mexico (1992/3-2004/5)

SITC	Products	RCA (2004-5)	Change in RCA	
			2004-5/92-3	2004-5/00-01
Finished products:				
722	Tractors, non-road	0.31	0.66	**1.29**
783	Road motor vehicles nes.	0.27	0.21	0.51
762	Radio receivers	0.31	0.66	**1.29**
721	Agricul. mach.excl. tractors	0.77	1	0.88
751	Office machines	0.42	0.40	0.66
791	Railways vehicles	**1.57**	**2.97**	**1.06**
727	Food mach., non-domestic	0.96	0.98	0.89
785	Cycles, etc, motorize or not			
723	Civil engineer equip., etc	0.77	0.62	**1.01**
745	Non-electric mach. tools	**1.59**	0.87	**1.07**
773	Electricity dist. equip.	**2.66**	0.61	0.82
742	Pumps for liquids, etc	**1.13**	0.99	**1.11??**
744	Mechanical handling eqiup.	0.90	0.78	0.88
774	Electro-medical, x-ray equip.	0.64	0.75	**1.04**
718	Other power gen. machinery	0.59	**1.49**	**1.21**
736	Metal working mach.tools	**1.39**	0.73	0.93
737	Metal working machines nes	**1.66**	**1.08**	**1.01**
724	Textile , leather mach.	**1.03**	**1.02**	0.63

725	*Paper etc. mill machinery*	*0.96*	*0.92*	*0.79*
786	*Trailers, non-motor vehicles*	*0.98*	*0.88*	*0.86*
741	*Heating, cooling equipments*	***1.18***	***1.01***	***1.01***
Parts and components:				
776	Transistors, valves, etc	**1.30**	0.77	1.05
726	Print & bookbind.mach.parts	0.75	0.63	0.88
714	Engines &motors nes	0.52	**1.58**	**1.32**
711	Steam boilers & auxil.	0.73	0.30	**1.14**
712	Steam engines, turbines	0.54	0.22	0.69

Source: Calculated by the authors based on UN COMTRADE database

Table 14: Indicators of competitive advantage of office machine, data processing equipment and automotive products of Mexico (1992/2-2004/5)

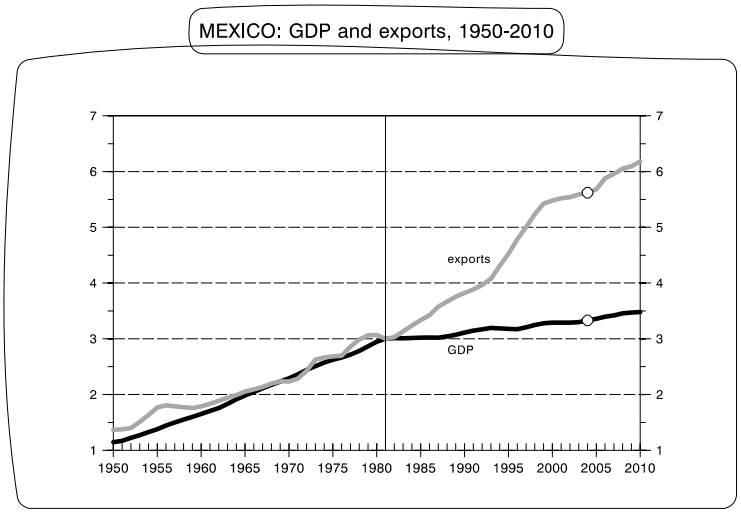
Products &SITC	Values ($b)						Exports			Imports		
	1992/3			2004/05			R 2004/5	R_c		R 2004/5	R_c	
	X	M	X-M	X	M	X-M		04-05/ 92-3	04-5/ 00/01		04-5/ 92-3	04-5/ 00/01
I. Automotive data processing machines and office machines												
Finished products:												
751	251	255	-4	108	146	-38	**0.36**	**0.26**	**0.41**	**0.42**	**0.40**	**0.66**
752	633	1008	-375	10061	6251	3810	1.80	3.504	1.016	1.06	6.139	1.2
Components:												
SITC 759	461	363	98	2585	5167	-2582	0.63	1.2	0.80	1.26	3.372	1.7
II. Automotive products:												
Finished products:												
781	3805	1744	2061	12623	7133	5490	1.25	**0.896**	**0.632**	**0.72**	6.139	1.247
782	628	3941	-3315	6912	2156	4756	3.80	3.388	1.006	1.6	4.078	1.329
783	10	189	-179	1172	139	1033	1.89	24.30	3.93	**0.27**	**0.21**	**0.51**
722	5.7	49.1	-43.1	90	88	2	**0.31**	**4.62**	**0.98**	**0.31**	**0.66**	1.29
Components												
784	1808	208	1600	9055	10175	-1120	1.88	1.315	1.216	2.13	3.614	0.802
713	1579	551	1028	4696	4537	159	2.04	0.753	1.062	1.97	2.374	0.98

Source: Calculated by the authors based on UN COMTRADE database
Note: R stands for Reveled Competitive Advantage Index and Rc for the ratio of R for 200/5 to R for 1992/93.

SITCs: 751: Office machines; 752: Automatic data processing equipment; 759: office, and data processing parts and components; 781: Passenger motor vehicles excluding busses; 782: Lorries and special motor vehicles; 783: Road motor vehicles not specified;722: tractor, non-road; 784:Motor vehicles, parts and components; 713:internal combustion piston engines.

Charts

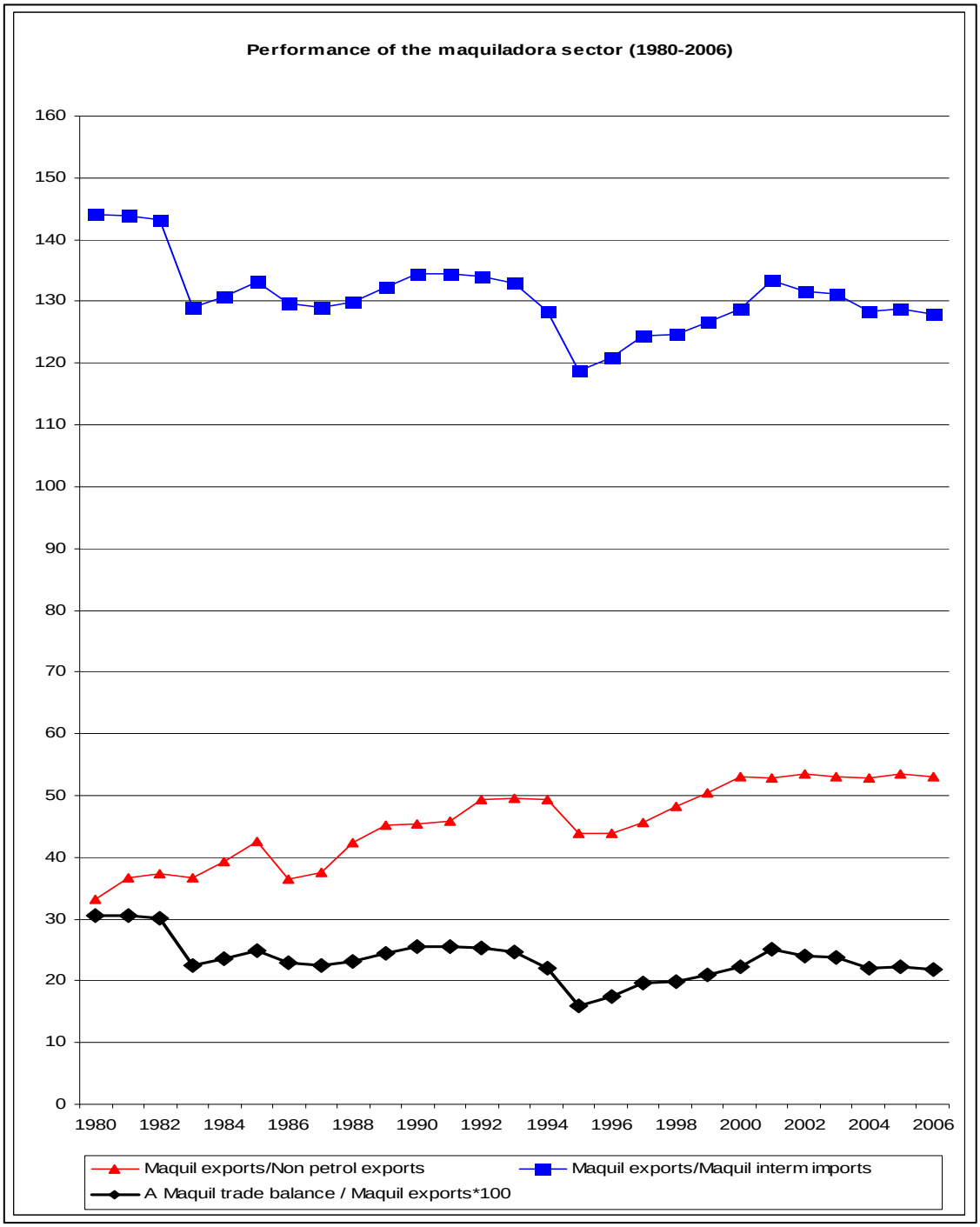
Chart 1



Source: Palma (2003:7) and updated for 2000-2010 by the courtesy of G. Palma of the Cambridge University.

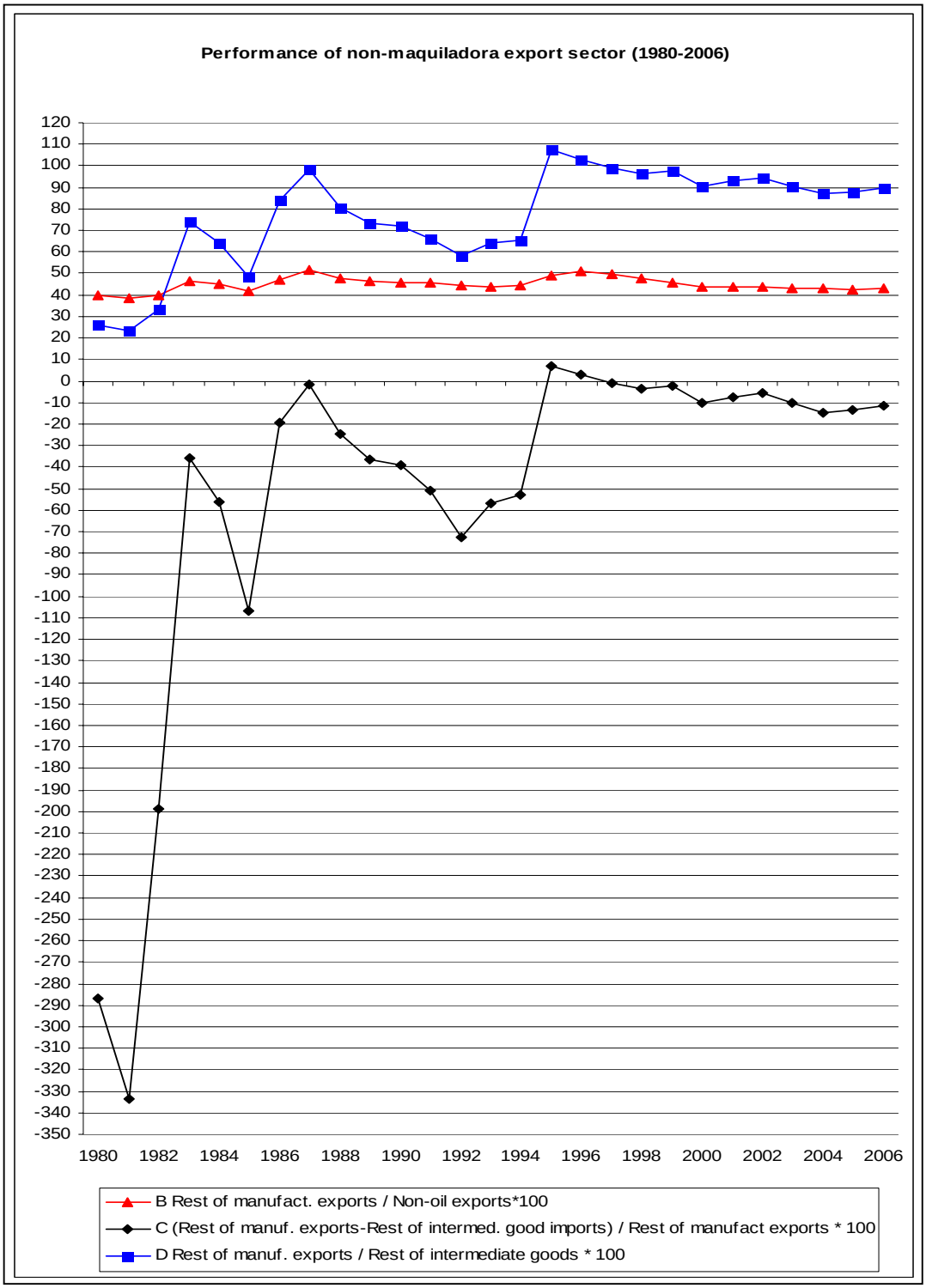
Note: the vertical axis is log scale and the variables are in three year moving averages.

Chart 2



Source: Table A.2 based on Bank of Mexico sources

Chart 3



Source: Table A.2 based on Bank of Mexico sources

Table A.1: Various Economic Indicators of China and Mexico(1980-2006)

	China						Mexico					
	1980	**1990**	**2000**	**2004**	**2005**	**2006**	**1980**	**1990**	**2000**	**2004**	**2005**	**2006**
GDP (constant 2000 billions of US$)	183	445	1198	1715	1890	2092	346	413	581	618	635	666
Total exports (millions of US$)	18099	62091	249203	593326	761953	968936	18031	40711	166121	187999	214233	249997
Non-oil exports (millions of US$)	15511	57619	244530	587417	751899	957894	17311	31165	150157	164797	182964	211628
Manufacturing exports	8712	44311	219886	542463	700491	895668	2358	21706	144725	157747	175166	202806
Foreign Direct Investment (millions of US$)	57	3487	38399	54936	79127	68469	2090	2633	17588	18674	15582	17107
Total imports	19941	53345	225094	561229	659953	791600	21089	41593	174458	196810	221820	256130
Manufacturing imports (millions of US$)	12204	42506	170081	428061	492843	579053	16579	27961	160936	177896	197401	227115
Xman.-Mman (millions of US$)	-3492	1805	49805	114402	207648	316615	-14221	-6255	-16212	-20149	-22235	-24309
							An. Av. Growth rates					
	1980-90	**1990-00**	**2000-2006**	**2004**	**2005**	**2006**	**1980-90**	**1990-00**	**2000-2006**	**2004**	**2005**	**2006**
GDP	10.3	10.6	9.8	10.1	10.2	10.7	1.1	3.1	2.3	4.2	2.8	4.8
Manufacturing value added	10.8	12.7	10.8	8.8	12.1	7.9	1.5	4.3	0.8	4.0	1.4	4.7
Total exports	12.8	14.5	27.4	35.4	28.4	27.2	5.9	16.1	7.4	14.1	14.0	16.7
Non-oil exports	22.0	15.1	27.8	35.9	28.0	27.4	2.8	18.1	5.9	12.6	11.0	15.7
Exports of man.	17.4	16.7	28.4	36.6	29.1	27.9	24.3	19.8	5.7	12.2	11.0	15.8
							Ratios					
	1980	**1990**	**2000**	**2004**	**2005**	**2006**	**1980**	**1990**	**2000**	**2004**	**2005**	**2006**
Manufacturing value added (% of GDP)	40.48	32.87	32.12	32.37	33.34	30.94	22.26	20.80	20.31	18.04	17.79	18.04
Gross fixed capital formation (% of GDP)	29.27	26.03	34.11	40.73	42.13	39.93	24.76	17.88	21.36	19.63	19.32	20.40
FDI/GDP	0.030	0.98	3.20	2.84	3.53	2.57	1.08	1.00	3.02	2.73	2.03	2.04
X/GDP	9.61	17.51	20.79	30.72	33.96	36.32	9.28	15.50	28.57	27.51	27.91	29.79
M/GDP	10.59	15.04	18.78	29.05	29.41	29.66	10.85	15.83	30.01	28.79	28.89	30.52
(X-M)/GDP(current terms)	-0.98	2.47	2.01	1.66	4.55	6.65	-1.57	-0.34	-1.43	-1.29	-0.99	-0.73
Xman/total X	48.14	71.36	88.24	91.43	91.93	92.44	13.08	53.32	87.12	83.91	81.76	81.12
Xman/nonoilX	44.78	76.90	89.92	92.35	93.16	93.50	13.62	69.65	96.38	95.72	95.74	95.83
Mman/total M	61.20	79.68	75.56	76.27	74.68	73.16	78.61	67.23	92.25	90.39	88.99	88.67
(Xman-Mman)/Xman	-40.08	4.07	22.65	21.09	29.64	35.35	-603.06	-28.82	-11.20	-12.77	-12.69	-11.99

Sources: authors' calculations based on World Development Indicators database, World Bank, World Economic Outlook, IMF, Bank of Mexico and COMTRADE

Table A.2: Mexico exports and imports 1980-2006

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Millions US$													
Total Exports	18031	23307	24055	25953	29100	26757	21804	27600	30691	35171	40711	42688	46196
Maquiladoras	2519	3205	2826	3641	4904	5093	5646	7105	10146	12329	13873	15833	18680
Rest of exports	15512	20102	21230	22312	24196	21664	16158	20494	20546	22842	26838	26854	27516
Petroleum exports	10441	14573	16477	16017	16601	14767	6307	8630	6711	7876	10104	8166	8307
Crude	9449	13305	15623	14793	14968	13309	5580	7877	5884	7292	8921	7265	7420
Other	993	1268	854	1224	1634	1458	727	753	828	584	1183	902	887
Non petroleum exports	7590	8734	7578	9936	12499	11991	15496	18970	23980	27295	30607	34521	37889
Agriculture	1528	1482	1233	1189	1461	1409	2098	1543	1670	1754	2162	2373	2112
Extractive	512	686	502	524	539	510	510	576	660	605	617	547	356
Manufacturing exports	5549	6566	5843	8224	10499	10071	12888	16851	21650	24936	27828	31602	35420
Maquiladoras	2519	3205	2826	3641	4904	5093	5646	7105	10146	12329	13873	15833	18680
Rest of manufacturing exports	3030	3360	3018	4583	5595	4978	7242	9746	11504	12607	13955	15769	16740
Total Imports	21089	27184	17011	11848	15916	18359	16784	18812	28082	34766	41593	49967	62129
Maquiladoras	1747	2229	1974	2823	3749	3826	4351	5507	7808	9328	10321	11782	13937
Rest of imports	19342	24955	15036	9026	12167	14533	12433	13305	20274	25438	31272	38184	48193
Consumption good imports	2448	2808	1517	614	848	1082	846	768	1922	3499	5099	5834	7744
Intermediary good imports	13467	16801	10991	9038	12495	14113	12983	15414	22134	26499	29705	35545	42830
Maquiladoras	1747	2229	1974	2823	3749	3826	4351	5507	7808	9328	10321	11782	13937
Rest of intermediary good imports	11720	14572	9017	6215	8746	10287	8632	9907	14325	17171	19384	23762	28893
Capital goods	5174	7574	4502	2197	2573	3165	2954	2631	4027	4769	6790	8588	11556
													-
Trade Balance	-3058	-3877	7045	14105	13184	8398	5020	8787	2610	405	-882	-7279	15934
Maquiladoras	772	976	851	818	1155	1267	1295	1598	2337	3001	3551	4051	4743
												-	-
Without maquiladoras	-3830	-4853	6193	13286	12029	7131	3725	7189	272	-2596	-4433	11330	20677
	-	-									-	-	-
Without petroleum exports	13500	18450	-9433	-1912	-3417	-6368	-1288	157	-4102	-7471	10986	15445	24240
% of total													
Total Exports	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Maquiladoras	14	14	12	14	17	19	26	26	33	35	34	37	40
Rest of exports	86	86	88	86	83	81	74	74	67	65	66	63	60
Petroleum exports	58	63	68	62	57	55	29	31	22	22	25	19	18
Crude	52	57	65	57	51	50	26	29	19	21	22	17	16
Other	6	5	4	5	6	5	3	3	3	2	3	2	2
Non petroleum exports	42	37	32	38	43	45	71	69	78	78	75	81	82
Agriculture	8	6	5	5	5	5	10	6	5	5	5	6	5
Extractive	3	3	2	2	2	2	2	2	2	2	2	1	1
Manufacturing exports	31	28	24	32	36	38	59	61	71	71	68	74	77
Maquiladoras	14	14	12	14	17	19	26	26	33	35	34	37	40
Rest of manufacturing exports	17	14	13	18	19	19	33	35	37	36	34	37	36
Total Imports	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Maquiladoras	8	8	12	24	24	21	26	29	28	27	25	24	22
Rest of imports	92	92	88	76	76	79	74	71	72	73	75	76	78
Consumption good imports	12	10	9	5	5	6	5	4	7	10	12	12	12
Intermediary good imports	64	62	65	76	79	77	77	82	79	76	71	71	69
Maquiladoras	8	8	12	24	24	21	26	29	28	27	25	24	22
Rest of intermediary good imports	56	54	53	52	55	56	51	53	51	49	47	48	47
Capital goods	25	28	26	19	16	17	18	14	14	14	16	17	19
					%								
Maquil exports/Non petrol exports	33	37	37	37	39	42	36	37	42	45	45	46	49
Maquil exports/Maquil interm imports	144	144	143	129	131	133	130	129	130	132	134	134	134
					%								
A Maquil trade balance / Maquil exports*100	31	30	30	22	24	25	23	22	23	24	26	26	25
B Rest of manufact. exports / Non-oil exports*100	40	38	40	46	45	42	47	51	48	46	46	46	44
C (Rest of manuf. exports-Rest of intermed. good imports) / Rest of manufact exports * 100	-287	-334	-199	-36	-56	-107	-19	-2	-25	-36	-39	-51	-73
D Rest of manuf. exports / Rest of intermediate goods * 100	26	23	33	74	64	48	84	98	80	73	72	66	58

Source: Based on Bank of Mexico publications and Internet Site.

Table A.2: Mexico exports and imports 1980-2006

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
						Millions US$								
Total Exports	51886	60882	79542	96000	110431	117539	136362	166121	158780	161046	164766	187999	214233	250292
Maquiladoras	21853	26269	31103	36920	45165	53083	63854	79467	76881	78098	77467	86952	97401	111882
Rest of exports	30033	34613	48438	59079	65266	64456	72508	86653	81899	82948	87299	101047	116832	138410
Petroleum exports	7691	7630	8683	11840	11478	7307	9970	16135	13199	14830	18602	23667	31891	39124
Crude	6485	6624	7420	10705	10334	6448	8830	14553	11928	13392	16676	21258	28329	34809
Other	1205	1006	1263	1134	1144	859	1141	1582	1272	1438	1926	2409	3561	4315
Non petroleum exports	44195	53252	70859	84160	98954	110232	126392	149986	145580	146216	146164	164332	182342	211168
Agriculture	2814	3059	4581	4130	4449	4336	4456	4765	4446	4215	5036	5684	6008	6986
Extractive	308	373	488	421	450	447	421	496	386	367	496	901	1168	1317
Manufacturing exports	41074	49821	65789	79610	94055	105449	121515	144725	140748	141635	140632	157747	175166	202865
Maquiladoras	21853	26269	31103	36920	45165	53083	63854	79467	76881	78098	77467	86952	97401	111882
Rest of manufacturing exports	19221	23551	34686	42689	48890	52366	57661	65257	63868	63536	63165	70796	77765	90983
Total Imports	65367	79346	72453	89469	109808	125373	141975	174458	168396	168679	170546	196810	221820	256130
Maquiladoras	16443	20466	26179	30505	36332	42557	50409	61709	57599	59296	59057	67742	75679	87503
Rest of imports	48924	58880	46274	58964	73476	82816	91565	112749	110798	109383	111489	129067	146141	168627
Consumption good imports	7842	9510	5335	6657	9090	11108	12175	16691	19752	21178	21509	25409	31513	36972
Intermediary good imports	46568	56514	58421	71890	85639	96935	109270	133637	126149	126508	128831	148804	164092	188634
Maquiladoras	16443	20466	26179	30505	36332	42557	50409	61709	57599	59296	59057	67742	75679	87503
Rest of intermediary good imports	30125	36048	32242	41385	49307	54379	58860	71929	68550	67212	69774	81061	88412	101130
Capital goods	10956	13322	8697	10922	15079	17329	20530	24130	22496	20992	20205	22597	26216	30525
	-	-												
Trade Balance	13481	18464	7088	6531	623	-7834	-5613	-8337	-9617	-7633	-5779	-8811	-7587	-5838
Maquiladoras	5410	5803	4924	6416	8833	10526	13444	17759	19282	18802	18410	19209	21723	24379
	-	-												
Without maquiladoras	18891	24267	2164	115	-8210	-18360	-19057	-26096	-28899	-26435	-24189	-28021	-29309	-30217
	-	-												
Without petroleum exports	21171	26094	-1594	-5309	-10854	-15141	-15583	-24472	-22816	-22463	-24382	-32478	-39477	-44962
						% of total								
Total Exports	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Maquiladoras	42	43	39	38	41	45	47	48	48	48	47	46	45	45
Rest of exports	58	57	61	62	59	55	53	52	52	52	53	54	55	55
Petroleum exports	15	13	11	12	10	6	7	10	8	9	11	13	15	16
Crude	12	11	9	11	9	5	6	9	8	8	10	11	13	14
Other	2	2	2	1	1	1	1	1	1	1	1	1	2	2
Non petroleum exports	85	87	89	88	90	94	93	90	92	91	89	87	85	84
Agriculture	5	5	6	4	4	4	3	3	3	3	3	3	3	3
Extractive	1	1	1	0	0	0	0	0	0	0	0	0	1	1
Manufacturing exports	79	82	83	83	85	90	89	87	89	88	85	84	82	81
Maquiladoras	42	43	39	38	41	45	47	48	48	48	47	46	45	45
Rest of manufacturing exports	37	39	44	44	44	45	42	39	40	39	38	38	36	36
Total Imports	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Maquiladoras	25	26	36	34	33	34	36	35	34	35	35	34	34	34
Rest of imports	75	74	64	66	67	66	64	65	66	65	65	66	66	66
Consumption good imports	12	12	7	7	8	9	9	10	12	13	13	13	14	14
Intermediary good imports	71	71	81	80	78	77	77	77	75	75	76	76	74	74
Maquiladoras	25	26	36	34	33	34	36	35	34	35	35	34	34	34
Rest of intermediary good imports	46	45	45	46	45	43	41	41	41	40	41	41	40	39
Capital goods	17	17	12	12	14	14	14	14	13	12	12	11	12	12
						%								
Maquil exports/Non petrol exports	49	49	44	44	46	48	51	53	53	53	53	53	53	53
Maquil exports/Maquil interm imports	133	128	119	121	124	125	127	129	133	132	131	128	129	128
						%								
A Maquil trade balance / Maquil exports*100	25	22	16	17	20	20	21	22	25	24	24	22	22	22
B Rest of manufact. exports / Non-oil exports*100	43	44	49	51	49	48	46	44	44	43	43	43	43	43
C (Rest of manuf. exports-Rest of intermed. good imports) / Rest of manufact exports * 100	-57	-53	7	3	-1	-4	-2	-10	-7	-6	-10	-15	-14	-11
D Rest of manuf. exports / Rest of intermediate goods * 100	64	65	108	103	99	96	98	91	93	95	91	87	88	90

Table 3: RCA indicators for telecommunication equipment and components (Mexico and China,1992-2005)

SITC	Product Name	Shares in total			RCA			Change in RCA	
		1992/93	2000/01	2004/05	1992/93	2000/01	2004/05	2004-5/1992-3	2004-5/2001-2
	Exports								
	China								
764	Telecommunications equipment and pa	1.758	5.390	7.845	0.828	1.524	2.271	2.741	1.490
7649	Parts and components	0.920	2.345	3.174	0.959	1.753	2.380	2.482	1.357
764-7649	Finished products	0.837	3.046	4.670	0.721	1.385	2.202	3.056	1.590
	Mexico								
764	Telecommunications equipment and pa	3.223	6.871	5.467	1.519	1.943	1.583	1.042	0.815
7649	Parts and components	2.201	1.690	1.692	2.293	1.264	1.269	0.553	1.004
764-7649	Finished products	1.023	5.181	3.774	0.879	2.356	1.779	2.023	0.755
	Imports								
	China								
764	Telecommunications equipment and pa	4.299	5.410	4.149	2.195	1.605	1.294	0.589	0.806
7649	Parts and components	2.316	3.399	3.267	2.749	2.711	2.768	1.007	1.021
764-7649	Finished products	1.983	2.010	0.882	1.777	0.950	0.435	0.245	0.458
	Mexico								
764	Telecommunications equipment and pa	2.861	4.262	4.691	1.461	1.265	1.463	1.002	1.157
7649	Parts and components	1.373	1.810	2.893	1.629	1.443	2.451	1.505	1.699
764-7649	Finished products	1.488	2.452	1.798	1.333	1.159	0.887	0.665	0.766

Source: calculated by the authors based on Comtrade Database

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[1] Export promotion and outward orientation do not mean exactly the same thing (See Shafaeddin, 2005.a). Nevertheless in this paper they are used interchangeably as it is done by neo-liberals.

[2] Throughout this paper comparative advantage and revealed comparative advantage (RCA) are used interchangeably and abbreviated by CA. For the use of the term CA rather than "comparative advantage" see Shafaeddin (2004).

[3] For more details see Shafaeddin (2005: 151-3).

[4] Note, however, that import substitution and inward-looking is not the same thing, as outward looking and export promotion are not necessarily similar (see Shafaeddin, 2005:13-16 for details).

[5] See also Bell (1984)

[6] See Bruton, Ibid: 929-30 for a large number of references on the relevant issues.

[7] When PITEX, which is a programme similar to maquila, is added, the share of exports from processing zones to total exports increases to 87 per cent in 2000 (Puyan and Romero, 2006):17.

[8] Based on the same source as Table A.1.
[9] Note also that the change can not be explained entirely by the development in the oil sector.

[10] According to J.P. Morgan the growth rates of GDP for the period 2006-2008 is estimated to be about 4.2 per cent (J.P.Morgan on line, Data Watch, 6 January 2006 , p.5 and 23 March 2007:5).

[11] Based on IMF, *World Economic Outlook, 2007.*

[12] Based on IMF, Ibid.

[13] Based on IMF, *Ibid.*

[14] Ibid

[17] Another two items (SITC 764, 792) include both finished products and components.

[18] SITC 764 includes both finished products and components and components account for about 77% of total imports.

[19] A similar phenomenon and tendency were also noticed in other Latin American countries (see Shafaeddin, 2005).