Exports, growth, and employment in Mexico, 1978–2000

Abstract: In this paper, the results of an export-led growth strategy accompanied by a trade liberalization policy implemented in Mexico are analyzed for various periods between 1978 and 2000. The input–output analysis is used to determine the effects of growing exports on gross output and on the level of employment. The results of this analysis allowed us to conclude that the positive effect of increasing manufacturing exports on production is limited and offset by manufacturing imports, thus displacing domestic production. The positive effect of exports on direct and indirect employment is not as important as that of domestic production. However, these positive effects of exports are accentuated by the North American Free Trade Agreement.

Key words: employment, exports, growth, input–output, liberalization.

After the 1982 economic crisis in Mexico, the government initiated a process of trade liberalization as part of a set of liberal policies aimed at reducing state intervention in the economy. The process, which was gradual in the beginning, accelerated at the end of the 1980s and peaked when Mexico joined the North American Free Trade Agreement (NAFTA) in 1994.

This package of liberal measures was promoted in Mexico and in other developing countries by the U.S. government, the World Bank, and the International Monetary Fund (IMF) (Sachs, 1988, p. 77). These reforms were also applied in some Latin American countries in the 1980s and 1990s under the assumption that mere deregulation constituted the structural change needed to correct a distorted economy and increase the level of employment and wages (Weller, 2000, p. 13).

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These liberal policies, based on exports, were recommended as a new strategy both for recovery and growth. The export-led growth strategies had been very successful in some Asian countries; however, they did not adopt all liberalization policies simultaneously as a strategy to promote exports. On the contrary, the East Asian experience shows that successful export-promoting policies have been accompanied regularly with import controls and rigid regulations on the movement of capital (Sachs, 1988, p. 78). And in South Korea and Taiwan, they were preceded by assorted industrial policies (Rodrik, 1995). It has been argued that the outward orientation of growth in these countries occurred as a consequence of an investment boom and not the other way around (ibid.). Another experience closer to the Mexican case is that of Chile, which started as a gradual process of trade liberalization in the mid-1970s, with some good results for exports, but rather bad results for employment (Cox and Edwards, 1997).

In Mexico, the idea was to induce growth by increasing exports, in particular manufacturing exports, without the help of state subsidies. One of the main reasons for abandoning protectionism was that it was producing a bias against exports (Lustig et al., 1992). This measure was considered conducive to structural change because liberalization of trade and capital flows would supposedly lead to accelerated industrialization. It was expected that the growing aggregate demand, produced by the increase of exports, would stimulate domestic production and, hence, employment.

Since the opening of the economy and especially since Mexico joined NAFTA, some manufacturing exports have been growing significantly. Nonetheless, the actual impact of these exports on aggregate variables, such as the level of output and employment, for the economy as a whole or for its different sectors, is not clear.

In a recent paper (Ruiz-Nápoles, 2001), we studied the effect of the increase in exports on gross output and foreign exchange for the 1978–94 period, using input–output structural analysis. In the present study, we analyze the effect of the increase in exports on gross output and on employment during the 1978–2000 period, using the input–output matrix for the years 1980, 1985, 1990, 1993, and 1996.¹

¹ There have not been matrices calculated by government agencies for almost 20 years. A private consulting firm has produced some of the matrices used in this study, the most recent, of 1996. This matrix is assumed to capture all changes taking place during the NAFTA period, so it was used to estimate gross output and employment generated by exports for 1996 to 2000.
The export-led growth strategy

Since Keynes, the economy is conceived of in a dynamic way, as being susceptible to stimulation by aggregate demand (Davidson, 1997). Aggregate demand can be divided into three components: consumption, investment, and exports (government expenditures being included in consumption and investment). In a model with price stability plus fiscal and external equilibrium, a dynamic factor that does not create disequilibrium is foreign demand; that is, export demand (see Cornwall, 1977, ch. 7; Davidson, 1997). The increase in exports has, by itself, a direct effect on the level of production and employment; it also expands the demand for intermediate goods and thereby causes an indirect increase in employment. On the other hand, the foreign exchange inflow generated by growing exports allows imports to increase by that same amount, without creating a deficit.

There exists, at least in theory, a virtuous circle in export-led growth (Cornwall, 1977, p. 165). This kind of growth is supposed to increase productivity and, therefore, competitiveness, which again reinforces the tendency to export. It is important to note that an export-led growth strategy is always based on manufacturing exports since demand in this sector is highly elastic with respect to income and prices in the world market. Therefore, in the early 1980s, some experts in Mexico considered that manufacturing exports could become the pivot for growth in the rest of the economy and, especially, for increasing employment. This, however, required changes in the foreign exchange and foreign trade policies (see Clavijo and Valdivieso, 1983; Levy, 1982).

Trade policy was changed so that exporters could import low-cost, high-quality intermediate goods (inputs) in order to use the relatively cheap local labor to produce manufacturing goods for export at a competitive level. However, such a strategy required investment from abroad, for which there were still obstacles at the end of the 1980s.

The wage differential in manufacturing between Mexico and the United States, along with their geographical closeness, has always been an attraction for foreign firms. Nonetheless, foreign investment was strongly limited and regulated up to the 1980s; and this is why it did not represent an important share of total installed investment in Mexico.

Therefore, the opening process could not be completed until the late 1980s or the early 1990s, when financial opening took place in Mexico, helped by a boom in capital investment in emerging markets around the world. In effect, the liberalization of finance and investment in Mexico completed the process of trade liberalization and stimulated
export-oriented manufacturing production that had begun to grow the
decade before.

Changes in exports and production

The changes brought about by these new policies in Mexico’s exports,
both in their volume and their structure, are the subject of the second
section of this paper. An initial precision is in order: the statistics on
exports have changed their coverage in recent years; they now include
exports of assembly plants, called maquiladoras, which now account
for an important share both of total and manufacturing exports.

The data on exports of goods alone, excluding maquiladoras, reveals a
dynamic in which different sectors grew at very different rates in the
1978–2000 period. Taking this into account, we divided the data in five
subperiods, as shown in Table 1, in current U.S. dollars.

In the first subperiod, between 1978 and 1981, when the economy was
relatively protected from abroad, the average rate of growth was ex-
traordinarily high, mainly due to the oil exports, which in those years
were very important. The increase in the gross domestic product (GDP),
measured in pesos at constant prices, was on average 9.2 percent a year,
a figure that is extraordinarily high. There is no doubt that the main
factor of growth was oil export.

In the second subperiod, from 1982 to 1986, characterized by a pro-
cess of gradual trade opening, the average rate of growth in exports was
negative. Oil exports declined sharply, but not manufacturing exports,
and the GDP did not increase in real terms. In particular, in 1983 and
1986, the annual GDP growth rate was negative, while the correspond-
ning rate of manufactured exports was positive.

In the third subperiod, from 1987 to 1990, during which Mexico fi-
nally joined the General Agreement on Tariffs and Trade and its liber-
alization process accelerated, there was an increase in exports at the rate
of about 14 percent a year. The determining factor in this increment is
manufacturing exports. GDP grew moderately, at an average rate of 3.1
percent a year.

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2 They are also known as in-bond manufacturing, offshore assembly, or runaway
plants. Maquiladora is a Spanish name for the program established in Mexico in the
mid-1960s.

3 Also known by its acronym GATT; now the World Trade Organization.
### Table 1
Exports and their impact on GDP (annual rates of change)

<table>
<thead>
<tr>
<th>Period</th>
<th>Total excluding maquiladoras</th>
<th>Oil and related products</th>
<th>Manufactures</th>
<th>Other nonmanufactures</th>
<th>Maquiladoras</th>
<th>Total including maquiladoras</th>
<th>GDP real</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978–1981</td>
<td>47.2</td>
<td>105.2</td>
<td>5.9</td>
<td>8.7</td>
<td>N.A.</td>
<td>N.A</td>
<td>9.2</td>
</tr>
<tr>
<td>1981–1986</td>
<td>–3.3</td>
<td>–10.9</td>
<td>19.6</td>
<td>5.5</td>
<td>13.3</td>
<td>–0.7</td>
<td>–0.5</td>
</tr>
<tr>
<td>1986–1990</td>
<td>13.9</td>
<td>15.1</td>
<td>18.2</td>
<td>2.6</td>
<td>25.7</td>
<td>17.0</td>
<td>3.1</td>
</tr>
<tr>
<td>1990–1994</td>
<td>6.7</td>
<td>–6.9</td>
<td>14.8</td>
<td>2.8</td>
<td>17.3</td>
<td>10.7</td>
<td>3.6</td>
</tr>
<tr>
<td>1994–2000</td>
<td>17.3</td>
<td>19.3</td>
<td>18.9</td>
<td>9.2</td>
<td>20.3</td>
<td>18.5</td>
<td>3.6</td>
</tr>
</tbody>
</table>


*Note:* N.A.—Not available.
In the fourth subperiod, from 1991 to 1994, the mean rate of export growth goes down to 7 percent a year, and the GDP grew at an average of 3.6 percent.

Finally, in the subperiod from 1995 to 2000, the rate of increment of exports goes up to an average of 17 percent a year, the GDP growth rate stays at 3.6 percent a year, and the growth rate of all exports categories are higher than in the previous period.

In the whole period under study, it is striking to observe that there seems to be no correlation between the first column of Table 1, of total manufacturing export growth (excluding maquiladoras), and the last column of Table 1, of real GDP growth. In fact, if we consider the 1983–97 period (see Figure 1), there is even a negative correlation; for example, whenever there is a low or negative rate of GDP growth, the rate of growth in manufacturing exports is positive and high.

This can be explained by the fact that reductions in GDP growth were induced to a large extent by the adjustment programs put into effect by the government in 1982–83, 1986, and 1995, which include the following measures: government spending cutbacks, currency depreciations, domestic credit restrictions, and real wage reductions. All of this affected domestic consumption and investment, but not manufacturing exports. This negative relationship between exports and output can also be
explained by the fact that, until the early 1990s, most production was oriented toward the domestic market; only residual production was exported, with the exception of oil and maquiladora products. This situation changed in the NAFTA period between 1994 and 2000 during which, with the exception of 1995, export and output growth began to correlate.

This increase in exports in the last period (1995–2000) is undoubtedly the result of an increasing U.S. demand for imports, and also to the increased access to the U.S. market brought about by NAFTA. An important factor contributing to the liberalization process was that, since 1992, the Mexican economy was opened up to foreign investment, both as direct productive investment and as financial flows, by means of important changes in the legislation. It is highly probable that by 1994 foreign investment projects had matured and some plants had started to operate, both export-oriented and assembly plants.

Another important factor in determining the increase in exports, especially since 1986, is the increment in maquiladora exports, which kept on growing at an average rate of 20.7 percent a year between 1986 and 2000.

In Table 2, the change in the export structure (without maquiladoras) is shown, ranging from a period in which exports depended a great extent on oil and its related products—65 percent in the 1982–86 period—to another period in which manufacturing exports are predominant—76 percent in the 1995–2000 period. A very important change is in the share of the maquiladora exports in the total, from an average of 14 percent in the first five years of the 1980s, to 43 percent in the last five years of the 1990s.

The data shown in Table 3 indicate that the composition of aggregate demand has also changed notably. Even though the share of domestic consumption remains above 75 percent on average, exports range from 11 percent to 31 percent of GDP; that is, its share has almost tripled. What makes it possible to keep the consumption share steady and to increase the share of exports in the GDP is the relative decline in investment and the increase in imports, which raise the share of GDP from 12.3 percent to 31 percent in the same period.

**Employment and underemployment**

The employment problem is undoubtedly the most acute in the Mexican economy. Migration flows to the United States due to the lack of jobs in Mexico not only did not stop but rather increased, despite the undeniably high growth rate of the Mexican economy in the last period analyzed,
Table 2
Structure of exports (percentages)

<table>
<thead>
<tr>
<th>Period</th>
<th>Total excluding maquiladoras</th>
<th>Oil and related products</th>
<th>Manufactures</th>
<th>Other nonmanufactures</th>
<th>Total including maquiladoras</th>
<th>Maquiladoras</th>
<th>Non-maquiladoras</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978–1981</td>
<td>100.0</td>
<td>53.0</td>
<td>28.6</td>
<td>18.4</td>
<td>100.0</td>
<td>13.9</td>
<td>86.1</td>
</tr>
<tr>
<td>1982–1986</td>
<td>100.0</td>
<td>65.1</td>
<td>25.1</td>
<td>9.8</td>
<td>100.0</td>
<td>17.5</td>
<td>82.5</td>
</tr>
<tr>
<td>1987–1990</td>
<td>100.0</td>
<td>29.4</td>
<td>42.1</td>
<td>8.5</td>
<td>100.0</td>
<td>32.0</td>
<td>68.0</td>
</tr>
<tr>
<td>1991–1994</td>
<td>100.0</td>
<td>26.7</td>
<td>63.8</td>
<td>9.5</td>
<td>100.0</td>
<td>40.7</td>
<td>59.3</td>
</tr>
<tr>
<td>1995–2000</td>
<td>100.0</td>
<td>16.4</td>
<td>76.8</td>
<td>6.8</td>
<td>100.0</td>
<td>43.0</td>
<td>57.0</td>
</tr>
</tbody>
</table>

Table 3

Aggregate supply and demand (as a percentage of GDP at current prices)

<table>
<thead>
<tr>
<th>Period</th>
<th>GDP current prices</th>
<th>Imports</th>
<th>Supply = demand</th>
<th>Total consumption</th>
<th>Gross fixed investment</th>
<th>Change of inventories</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978–1981</td>
<td>100</td>
<td>12.3</td>
<td>112.3</td>
<td>75.6</td>
<td>23.9</td>
<td>2.1</td>
<td>10.7</td>
</tr>
<tr>
<td>1982–1986</td>
<td>100</td>
<td>10.6</td>
<td>110.6</td>
<td>73.1</td>
<td>19.4</td>
<td>1.2</td>
<td>16.9</td>
</tr>
<tr>
<td>1987–1990</td>
<td>100</td>
<td>17.7</td>
<td>117.7</td>
<td>76.2</td>
<td>18.1</td>
<td>4.1</td>
<td>19.3</td>
</tr>
<tr>
<td>1991–1994</td>
<td>100</td>
<td>20.1</td>
<td>120.1</td>
<td>81.8</td>
<td>19.1</td>
<td>3.3</td>
<td>15.9</td>
</tr>
<tr>
<td>1995–2000</td>
<td>100</td>
<td>31.0</td>
<td>131.0</td>
<td>77.1</td>
<td>19.3</td>
<td>3.6</td>
<td>31.0</td>
</tr>
</tbody>
</table>

Source: Banco de México, S.A., *Indicadores económicos* [Economic Indicators], various issues.
1995–2000 (Cornelius, 2002). These flows now include more qualified people, with more schooling than before.\footnote{The data was taken from La Migración en México. Indicadores estadísticos [Migration in Mexico: Statistical Indicators], Instituto Nacional de Estadística Geografía e Informática, Mexico, 2002.}

The economically active population (EAP) in Mexico represents little more than half of the population 12 years or older, and is growing at a rate of 3 percent a year. This means a figure close to 40 million people, and, in turn, that the number of new jobs required to keep these people occupied is about 1.2 million a year.\footnote{The data was published in XII Censo general de población y vivienda 2000 [Twelfth General Census of Population and Housing], Instituto Nacional de Estadística Geografía e Informática, Mexico, 2002.}

The Mexican economy has not been able to generate this number of jobs in any given year during the entire opening and integration periods. Hence, the cumulative job deficit. This, however, is difficult to measure accurately. The open unemployment rate, reported by the government agency that generates these statistics, is relatively low, since the definition of “employment” includes underemployment; therefore, it is useless as an indicator of the real job deficit.

It is widely understood that trade opening causes short-term unemployment (see Cox and Edwards, 1997, pp. 8–9). This short-term effect cannot be measured in the case of Mexico since there are not reliable figures about unemployment.

It is also believed that when free trade prevails, comparative advantages show up and, in the case of relative labor-abundant countries such as Mexico, it is expected that employment will rise in labor-intensive industries, and so growth may be based on trade expansion and comparative advantages (see Dowrick, 1997).

We observe that paid employment increased from 1993 to 1998, in the NAFTA period, by 3.13 million jobs; that is, 12 percent in five years despite the 1995 economic crisis that reduced the level of employment.\footnote{The data was taken from Sistema de cuentas nacionales de México [Mexico’s National Income Accounts System], Instituto Nacional de Estadística Geografía e Informática, Tables “Empleo remunerado por rama” [Paid Employment by Industry], Mexico, 2001.}

It is out of the scope of this study to prove that employment has increased more rapidly in labor-intensive industries than in others during this period in Mexico, but the increment of maquiladora exports in this period is quite revealing of the move toward the use of labor as the intensive factor of production.
Production and employment generated by exports

Input–output analysis

The impact of exports on employment is very difficult to measure directly since in almost every industry there are firms that export and others that do not; also, because many of these exporting firms produce for the domestic market, too, so the number of jobs they create cannot be attributed to exports alone.

A way to measure the impact of exports both on employment and on gross output (production for intermediate and final demand) is through input–output analysis, which includes the technical coefficients matrix, the direct employment vector, and the final demand vector (in this case, of exports). The basic idea is to measure the impact of final demand on gross output, estimate the employment coefficients by industry and, using the estimated gross output, calculate the employment generated by the level of gross output that is required by the level of exports.

Gross output

To estimate the level of gross output generated by aggregate demand, we start from Leontief’s system of equations:

$$x = Ax + f,$$

where $x$ is gross output, $A$ is the technical coefficients matrix, and $f$ is the final demand vector (Aroche and Rupra, 1991, p. 22; Bulmer-Thomas, 1982, ch. 7; Dervis et al., 1982, ch. 2; Pasinetti, 1977, ch. IV), the solution for which is

$$x = (I - A)^{-1} f,$$

where $(I - A)^{-1}$ is a matrix known as “Leontief’s inverse.”

A particular application of this model is

$$x^d = I A^d^{-1} f^d + e^d,$$

where $x^d$ is domestic gross output, $A^d$ is the technical coefficients matrix for domestic transactions, $f^d$ is the domestic final demand vector, and $e^d$ is the vector of domestically produced exports (Bulmer-Thomas, 1982, ch. 7; Dervis et al., 1982, ch. 2).

If, we split the demand according to its source, we have

$$x_f^d = I A_f^d f^d,$$
where $x_e^d$ is domestic gross output exclusively associated with domestic demand, and

$$x_e^d = I A^d e^d,$$  \hfill (5)

where $x_e^d$ is domestic gross output exclusively associated with exports.

We estimate Equation (5) for Mexico with annual values from 1978 to 2000, taking as $A^d$ the technical coefficients matrix for domestic transactions of the years 1975, 1980, 1985, 1990, 1993, and 1996. The matrix year was utilized as the midyear for five-year periods, from 1978 to 1992; 1993 and 1994 were estimated with the 1993 matrix; and the 1995–2000 period was estimated with the 1996 matrix. The variable $e^d$ was the vector of exports of goods and services, not including maquiladoras, in real terms for the 1978–2000 period.

**Employment**

In order to calculate the level of employment generated by exports, different methodologies were considered; the simplest one was chosen because it was the most adequate.7

The first step is to get the labor coefficients vector, according to the following equation:

$$n \hat{Y} 1,$$  \hfill (6)

where $\lambda$ is the labor coefficients vector, $n$ is the employment by industry vector, and $\hat{Y}$ is the diagonal matrix of gross output by industry; that is,

$$\hat{Y} 1 x^d,$$  \hfill (7)

where 1 is the unit vector of order $m$, and $x^d$ is determined by Equation (3).

The following ratio are the estimated coefficients expressed in each industry

$$i n_i / y_i,$$

where $n_i$ is employment of industry $i$, and $y_i$ is gross output in industry $i$. $\lambda$ is the vector of industry labor coefficients, where $i = 1, 2, \ldots, m$.

7 The methodology used was recommended by experts who estimated the matrices in Mexico for the years 1990, 1993, and 1996. The details are explained in the software package Stata Matrix (see the Appendix for data sources). This methodology was compared with the one utilized by Levy (1982) and the results obtained were the same.
Labor generated by exports in each industry is calculated by

\[ n_e \hat{Y}_e, \]  

where \( n_e \) is the vector of industry employment associated with gross output generated by exports; \( \lambda \) is the vector of labor coefficients, estimated by Equation (6); and \( \hat{Y}_e \) is the diagonal matrix of gross output generated by exports estimated by Equation (5).

Exports direct employment is a vector estimated by

\[ l_e \hat{E}, \]  

where \( l_e \) is direct employment associated with exports; \( \lambda \) is the vector of labor coefficients, estimated by Equation (6); and \( \hat{E} \) is the diagonal matrix of exports by industry; that is,

\[ \hat{E}1 \ e^d. \]  

We applied this model to estimate both the gross output generated by exports and the level of employment associated with it, using the domestic transactions matrix of Mexico for the years 1980, 1985, 1990, 1993, and 1996. We used these matrix years as the midpoint of five-year periods from 1978 to 1992; with the 1993 matrix, we estimated 1993 and 1994; and with the 1996 matrix, we estimated 1995 to 2000. We utilized the information on all 72 entries in the matrix and on the export of goods and services, not including maquiladoras, for the 1978–2000 period.

With this data calculated in real terms, we then obtained the ratio of employment generated by exports to the total, and the ratio of gross output generated by exports with respect to the total.

**Results**

Based on the above analysis, we obtained the gross output required to produce the actual level of exports each year and calculated that value as a percentage of the total for the 1978–2000 period. We did the same with the employment data. This information was organized by periods according to the export dynamics analyzed above, and is presented in Table 4. The results indicate that in the last period, 1995–2000, the percentage of gross output generated by exports reached the highest level, almost 18 percent, whereas the employment generated by exports is only 10.5 percent of total paid employment.

With these results and with the data reported by INEGI on paid employment by industry, we made a comparative table (Table 5) in which
we present the data on the three sources of employment: exports, maquiladoras, and domestic market.

This comparison for the different periods identified above indicates that exports, including maquiladoras, together generated 14 percent of employment in the late 1990s. This figure is three times of that generated in the early 1980s; however, the greatest percentage of job creation corresponds to the domestic market.

Using the same methodology with the employment coefficients and the exports vector, we estimated the level of direct employment for each year associated with exports and calculated the ratio with respect to total employment. The results, which are shown in Table 6, indicate that the direct effect is always greater than the indirect effect, so that, on average, less than one new job is created in the rest of the economy by every new job in the export sector.

Table 4
Gross output and employment generated by exports (annual average percentage)

<table>
<thead>
<tr>
<th>Period</th>
<th>Gross output</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982–1986</td>
<td>10.5</td>
<td>4.73</td>
</tr>
<tr>
<td>1987–1990</td>
<td>10.6</td>
<td>6.39</td>
</tr>
<tr>
<td>1991–1994</td>
<td>10.5</td>
<td>6.60</td>
</tr>
<tr>
<td>1995–2000</td>
<td>17.7</td>
<td>10.55</td>
</tr>
</tbody>
</table>


Note: respect to actual total.

Table 5
Structure of job generation (annual average percentage)

<table>
<thead>
<tr>
<th>Period</th>
<th>Exports</th>
<th>Maquiladoras</th>
<th>Domestic market</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980–1981</td>
<td>3.73</td>
<td>0.54</td>
<td>95.72</td>
</tr>
<tr>
<td>1982–1986</td>
<td>4.73</td>
<td>0.82</td>
<td>94.45</td>
</tr>
<tr>
<td>1987–1990</td>
<td>6.39</td>
<td>1.60</td>
<td>92.02</td>
</tr>
<tr>
<td>1991–1994</td>
<td>6.60</td>
<td>1.95</td>
<td>91.44</td>
</tr>
</tbody>
</table>


Note: respect to the actual total.
The estimated impact of exports on employment and gross output show an important upward tendency in the years 1995 and 1996. However, in the rest of the decade, these percentages tend to stabilize, despite the fact that exports during those years increased constantly. This is shown in Figure 2, which includes the three main variables in the whole period: output, total employment, and direct employment generated by exports.

The trade balance and NAFTA

Mexico’s trade with the United States and Canada has increased considerably during the NAFTA period. Exports tripled from 1994 to 2000 and the trade balance is positive, even though imports have been growing also. In 2000, the trade surplus was greater than $19 billion (see Table 7).

It must be noted, however, that 90 percent of this positive trade balance is caused by maquiladora exports; hence the trade balance without maquiladoras tends toward zero, as shown in Table 7. This downward tendency of the trade balance without maquiladoras is worsened by the trade balance with the rest of the world, which is negative and growing, so much so as to offset the positive trade balance with the NAFTA area. Therefore, the overall trade balance for Mexico is a deficit of about $8 billion in 2000, even including maquiladoras (see Table 7).

If we take into account the fact that more than 80 percent of Mexico’s trade is realized only with the United States, it is surprising that 15 per-

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Table 6
Structure of employment generated by exports (annual average percentage)

<table>
<thead>
<tr>
<th>Period</th>
<th>Direct</th>
<th>Indirect</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980–1981</td>
<td>2.31</td>
<td>1.82</td>
<td>4.14</td>
</tr>
<tr>
<td>1982–1986</td>
<td>2.37</td>
<td>2.35</td>
<td>4.73</td>
</tr>
<tr>
<td>1987–1990</td>
<td>3.73</td>
<td>2.66</td>
<td>6.39</td>
</tr>
<tr>
<td>1991–1994</td>
<td>3.88</td>
<td>2.72</td>
<td>6.60</td>
</tr>
</tbody>
</table>

Sources: INEGI, Matriz de insumo-producto de México [Input–Output Matrix], 1980 and 1985 (1986); Consultoría Internacional Especializada, S.A., Stata Matrix, Version 1.0 and 2.0; INEGI, Sistema de cuentas nacionales [National Income Accounts System].

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8 In 2001, trade with the United States was affected by the slowdown of the U.S. economy; however, that year is not included in the period under study.
Conclusions

The results of the present study—using input–output analysis with the most recent matrix available up to now—confirm the previously observed tendency to reduce the impact that the extraordinary increment of export growth has had on total gross output (18 percent at most), especially when compared to the growing share of exports of GDP (31 percent). The main reason for this reduced impact is the low level of backward linkages between exports and the domestic economy, as a result of the opening process, which, on the contrary, has produced an extraordinary increase in imports (see Ruiz-Nápoles, 2001).

With respect to employment, neither the direct nor the indirect effects are very large, especially when compared to the magnitude of export growth during the period. An explanation may be found in the great importance that maquiladora exports now have, together with the fact that their indirect impact on employment is zero. Another factor is the growing importation of intermediary goods for manufacturing production, so that some of the benefits of expansion are transferred abroad (see López, 2002; Vásquez, 1995). Finally, whereas the direct impact of percent of Mexico’s foreign trade could cause a foreign exchange deficit large enough to offset the positive balance with the NAFTA area.
Table 7
Trade balance of Mexico (billions of U.S. dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>NAFTA trade</th>
<th></th>
<th>NAFTA without Maquiladoras</th>
<th>Rest of the world</th>
<th>Trade balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exports</td>
<td>Imports</td>
<td>Balance</td>
<td>Maquiladoras</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>53.4</td>
<td>58.6</td>
<td>-5.2</td>
<td>5.8</td>
<td>-11.0</td>
</tr>
<tr>
<td>1995</td>
<td>68.5</td>
<td>55.4</td>
<td>13.1</td>
<td>4.9</td>
<td>8.2</td>
</tr>
<tr>
<td>1996</td>
<td>82.8</td>
<td>69.4</td>
<td>13.5</td>
<td>6.4</td>
<td>7.1</td>
</tr>
<tr>
<td>1997</td>
<td>96.6</td>
<td>84.1</td>
<td>12.5</td>
<td>8.8</td>
<td>3.6</td>
</tr>
<tr>
<td>1998</td>
<td>104.8</td>
<td>95.7</td>
<td>9.1</td>
<td>10.5</td>
<td>-1.4</td>
</tr>
<tr>
<td>1999</td>
<td>123.0</td>
<td>108.5</td>
<td>14.5</td>
<td>13.4</td>
<td>1.0</td>
</tr>
<tr>
<td>2000</td>
<td>151.2</td>
<td>131.9</td>
<td>19.3</td>
<td>17.7</td>
<td>1.7</td>
</tr>
</tbody>
</table>

exports on employment has increased as a percentage of total employment, it is still low when compared to the rapid growth of total exports. This may be due at least in part to the fact that manufacturing exports are increasingly less labor and more capital intensive (see Brown and Domínguez, 2003).

The comparison of the subperiods allows us to say that the economic opening, up to 1994, resulted in very poor export performance when measured in terms of their ability to create jobs and increase production. It also shows that the outcome on production and employment was notably better during the NAFTA period. The trade statistics not only confirm this result but also lead us to reconsider whether an active commercial policy with other geographical areas is in Mexico’s best interest. The comparison of Mexico’s export-led growth strategy based on trade liberalization with other experiences, such as those of South Korea and Taiwan (see Rodrik, 1995), shows that without active industrial and commercial policies accompanied by import controls and regulations on the movements of capital, this type of industrialization will not yield the expected results in terms of employment and output growth.

REFERENCES


Bulmer-Thomas, V. Input-Output Analysis in Developing Countries, Sources, Methods and Applications. London: John Wiley & Sons, 1982.


Appendix

Data sources


Banco de México, S.A. *Indicadores económicos* [Financial and Economic Indicators], www.banxico.org.mx.

INEGI. *Sistema de cuentas nacionales de México* [National Income Accounts System], www.inegi.gob.mx.