

GAO

Report to the Honorable  
Richard A. Gephardt and the Honorable  
Sander M. Levin

July 1993

# U.S.-MEXICO TRADE

## The Maquiladora Industry and U.S. Employment



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**General Government Division**

B-253952

July 20, 1993

The Honorable Richard A. Gephardt  
The Honorable Sander M. Levin  
House of Representatives

This report responds to your request that we (1) determine how U.S. trade with Mexico's maquiladora industry has affected recent growth in U.S.-Mexican trade, especially trade in the top 10 U.S. manufactured exports to Mexico; and (2) review studies that have attempted to determine how the maquiladora program has affected U.S. employment.

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**Background**

A major debate is currently underway on how a North American Free Trade Agreement (NAFTA) would affect the U.S. economy, especially certain manufacturing industries. The United States, Mexico, and Canada began formal trilateral negotiations for NAFTA on June 12, 1991. Agreement was announced in August 1992, and NAFTA was signed on December 17, 1992. Ratification of NAFTA by the U.S. Congress is pending, awaiting submission of the implementing legislation.

Mexico's maquiladora program may offer some insight into how NAFTA's elimination of trade and investment barriers between the two countries may affect U.S. employment. Mexico's maquiladora program, which began in 1965 as part of the Mexican Border Industrialization Program, allows Mexican and foreign investors to establish manufacturing plants in selected areas of Mexico to produce for export. The manufacturing plants, called "maquiladoras," use primarily U.S.-made components to produce finished or semifinished goods that are exported, usually back to the United States. Foreign investors may own up to 100 percent of such plants. As long as the maquiladora's end product is exported, no Mexican duty is levied on imported machinery, raw materials, or components.

Certain U.S. tariff provisions provide benefits that extend to maquiladora products destined for the United States. For example, under provision 9802.00.80 of the Harmonized Tariff Schedule (HTS) of the United States, products assembled in foreign countries from U.S.-made components are subject to duties only on the value added in the foreign country. Furthermore, under HTS provision 9802.00.60, certain metal products of U.S. origin processed abroad and returned to the United States for further processing are subject to duties only on the value added by the foreign

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processing. These two tariff provisions are sometimes referred to as "production-sharing" provisions.<sup>1,2</sup>

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## Results in Brief

U.S. trade with and investment in Mexico in general have grown substantially in recent years. Between 1985 and 1992, U.S. merchandise exports to Mexico tripled in nominal (not adjusted for inflation) terms, while imports from Mexico grew by about 80 percent. Between 1985 and 1991, the cumulative stock of U.S. direct foreign investment in Mexico more than doubled, from \$5.1 billion to \$11.6 billion.

Precise data are not available on the proportion of U.S.-Mexican trade and investment that involves maquiladora firms. Estimates using U.S. trade data indicate that in nominal terms, U.S. exports to maquiladoras increased from about \$3 billion in 1985 to about \$6.5 billion in 1990. Mexican government import data show that in nominal terms, maquiladora imports from the United States rose from \$3.8 billion to \$10.3 billion during this same period. It is not clear which estimate is more accurate. However, both show that the proportion of U.S.-Mexican trade that involved maquiladoras rose from 1985 to 1987 and then fell between 1987 and 1990. U.S. production-sharing statistics show that between 1989 and 1992, the years for which complete data were available, the proportion of the top 10 U.S. manufactured exports to Mexico that went to maquiladoras fell from about 35 percent to about 28 percent.

Studies of the maquiladoras' impact on U.S. employment are divided, and it is difficult to determine which assessment, if any, is reliable. Because these studies use different methodologies and assumptions, it is difficult to compare their employment impact estimates. While these studies suggest that exports to maquiladoras support some U.S. jobs, they also show that maquiladora production—most of which the United States imports—has displaced other U.S. jobs. Thus, it is especially important when assessing the effect of changes in U.S.-Mexican trade on U.S. employment to consider the impact of both exports to and imports from maquiladoras. (See app. I for our scope and methodology.)

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<sup>1</sup> According to the U.S. International Trade Commission (ITC), production-sharing occurs when a company shares a portion of its production process with a foreign subsidiary or a foreign contractor to reduce the total cost of production. According to the Mexican government, almost one-half of maquiladoras registered through January 1992 are either wholly or majority owned by U.S. firms.

<sup>2</sup> Before January 1, 1989, imports under HTS provisions 9802.00.60 and 9802.00.80 entered the United States under items 806.30 and 807.00 of the former Tariff Schedules of the United States.

## Recent Growth in U.S.-Mexican Trade and Investment

Proponents of NAFTA point to a boom in trade and investment between the United States and Mexico in recent years as evidence that increased economic interaction between the two countries benefits the United States. Since 1985, U.S. trade with and investment in Mexico have greatly increased. In nominal (not adjusted for inflation) terms, from 1985 to 1992, U.S. merchandise exports to Mexico grew threefold, rising from \$13.1 billion to \$39.6 billion, and U.S. merchandise imports from Mexico grew by around 80 percent, from \$18.9 billion to \$33.9 billion. As a result, the U.S. merchandise trade balance with Mexico went from a deficit of about \$5.9 billion in 1985 to a surplus of about \$5.7 billion in 1992, an improvement in the balance of trade of about \$11.5 billion.<sup>3</sup>

When adjusted for inflation to 1992 dollars, U.S. merchandise exports to Mexico in 1985 were \$16.8 billion, and U.S. merchandise imports from Mexico were \$24.3 billion.<sup>4</sup> Thus, in real terms, U.S. merchandise exports to Mexico rose by about 136 percent from 1985 to 1992, and U.S. merchandise imports from Mexico rose by about 40 percent. In 1992 dollars, the U.S. merchandise trade deficit with Mexico in 1985 was \$4.6 billion. Thus, the U.S. inflation-adjusted merchandise trade balance with Mexico improved by \$10.3 billion from 1985 to 1992.

Moreover, merchandise trade statistics exclude trade in services. In 1991, the United States exported about \$8.3 billion in services to Mexico, and imported about \$7.9 billion. U.S. service exports to Mexico represented about 20 percent of U.S. service and merchandise exports to Mexico in that year.

## Growth in U.S. Investment in Mexico

U.S. government statistics show that the cumulative stock of U.S. direct foreign investment in Mexico more than doubled between 1985 and 1991, rising from \$5.1 billion to \$11.6 billion.<sup>5</sup> Mexican government statistics indicate that at the end of 1991, the United States was Mexico's

<sup>3</sup>According to U.S. Census Bureau officials, U.S. merchandise trade data probably undercount U.S. exports to Mexico because, while Customs Service officials are able to collect export documents from large trucks crossing the border, they are less likely to collect these documents from the many small trucks that do so. Census believes that the size of this undercount, while unknown, may be higher than the 3-percent undercount Census has found for U.S. exports to several other countries. Thus, the U.S.' current merchandise trade surplus with Mexico may be understated.

<sup>4</sup>Trade data are adjusted for inflation using the implicit gross domestic product price deflator as published in the January 1993 Economic Report of the President.

<sup>5</sup>As is common with foreign investment data, the numbers represent the historical value of investment, that is, the sum of the amounts invested each year up to the year reported.

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predominant foreign investor, with 63 percent of cumulative foreign direct investment.

Precise information on U.S. investment in maquiladora firms is not available. However, the number of maquiladora firms has more than tripled since 1985, and, according to the Mexican government, about one-half of the 2,522 maquiladoras registered with the Mexican government through January 1992 were either wholly or majority owned by U.S. firms.

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## Top 10 U.S. Exports to Mexico

The top 10 manufactured commodities that the United States exported to Mexico in 1992 represented about 23 percent of U.S. merchandise exports to Mexico in that year. Table II.1 shows U.S.-Mexican trade in these 10 categories of goods. As can be seen from the table, the largest categories of manufactured commodities the United States exported to Mexico in 1992, as defined at the 4-digit level of the HTS, were certain parts and accessories for motor vehicles; insulated wire and cable and optical fiber cables; parts for television, radio, and radar apparatus; and powered aircraft, spacecraft, and launch vehicles. In 1992, these four categories of goods constituted about 16 percent of U.S. merchandise exports to Mexico and about 13 percent of U.S. merchandise imports from Mexico.

As table II.1 shows, in nominal dollars, in 1985 the United States exported about \$2.4 billion of these 10 products to Mexico and imported about \$2.1 billion. By 1992, U.S. exports to Mexico of these items had risen almost fourfold, to about \$9.3 billion, while imports from Mexico roughly tripled, to about \$6.6 billion. Consequently, between 1985 and 1992 the U.S. merchandise trade surplus with Mexico in trade in these 10 items improved by about \$2.4 billion, from about \$0.3 billion to about \$2.7 billion.

In real terms, between 1985 and 1992 U.S. exports to and imports from Mexico of these 10 commodities grew more slowly than when the data are expressed in nominal terms. Table II.2 shows U.S. trade with Mexico in these 10 commodities in inflation-adjusted 1992 dollars. In real terms, these exports approximately tripled, while imports grew by about 140 percent. However, according to table II.2, the U.S. trade surplus with Mexico in these items grew by \$2.3 billion—about the same amount as when the data are expressed in nominal terms.

Nearly two-thirds of the increased surplus was due to the top commodity, certain motor vehicle parts and accessories. In inflation-adjusted dollars, in 1992, the United States exported about \$3.8 billion of certain motor vehicle parts and accessories to Mexico, up from \$1.1 billion in 1985, and imported from Mexico about \$1.8 billion of these goods, an increase from \$524 million in 1985. In 1992, U.S. exports to Mexico of these motor vehicle parts and accessories accounted for about 10 percent of U.S. merchandise exports to Mexico. However, according to an ITC official, many motor vehicle parts and accessories are not included in the 4-digit HTS motor vehicle parts and accessories category. Examples of motor vehicle parts and accessories not included are engines and parts, automotive furniture, tires, automotive glass, batteries, and some lighting equipment. Table II.3 shows the ITC's estimate of U.S. trade with Mexico in all motor vehicle parts and accessories in 1985 and 1992. The table indicates that the United States exported about \$1.9 billion of motor vehicle parts and accessories to Mexico in 1985, and imported about \$2.1 billion. In 1992, U.S. exports of these items to Mexico had more than tripled, to about \$5.7 billion, while imports had risen by about 137 percent, to about \$5 billion. As a result, a U.S. trade deficit with Mexico of about \$260 million in 1985 had become a surplus of about \$671 million in 1992, an improvement of about \$931 million.

Table II.3 also shows U.S.-Mexico trade in passenger automobiles and light trucks in 1985 and 1992. According to the table, in 1992 the United States ran a trade deficit in passenger automobiles and light trucks with Mexico of about \$2.9 billion, a nearly tenfold increase over the 1985 deficit of about \$304 million.

Table II.4 shows this trade in 1992 dollars. Like table II.3, table II.4 indicates that, in real terms, the U.S. merchandise trade balance with Mexico in motor vehicle parts and accessories improved by about \$1 billion during this period, and the U.S. merchandise trade deficit in passenger automobiles and light trucks rose by about \$2.5 billion.

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### Proportion of Merchandise Trade Involving the Maquiladora Industry

No official U.S. government data are available on the amount of U.S.-Mexican merchandise trade attributable to Mexico's maquiladora operations. U.S. government trade statistics do not distinguish between transactions involving maquiladora operations and other transactions because U.S. import and export documents do not require traders to identify whether they participate in the maquiladora program. Furthermore, the Mexican government's trade statistics do not include this

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information because maquiladora trade is excluded from Mexico's merchandise trade account. Instead, the value added from maquiladora operations is included in a separate assembly services category of Mexico's current account called "servicios por transformacion."

However, Mexico's central bank, the Banco de Mexico, does calculate the aggregate total of imports and exports involving maquiladoras. According to a Banco de Mexico official, almost 100 percent of the maquiladora industry's total imports and exports are traded with the United States. We used the Banco de Mexico's data on maquiladoras' imports from the world to approximate the maquiladora industry's merchandise imports from the United States.

Table II.5 shows this analysis for 1985-90. The table shows that, in nominal terms, maquiladoras' imports grew by about 170 percent during this period, from \$3.8 billion in 1985 to \$10.3 billion in 1990. During the same period, Mexico's merchandise imports from the United States, including maquiladora imports, rose by about 123 percent in nominal terms, from about \$12.8 billion to about \$28.5 billion. This information suggests that, if 100 percent of the maquiladora industry's imports were from the United States, then the proportion of Mexico's imports from the United States that went to the maquiladora industry over the period 1985-90 was about 37 percent.

Further, table II.5 also reveals that, while maquiladoras' share of Mexico's imports from the United States increased from about 30 percent in 1985 to about 40 percent in 1987, the proportion fell between 1988 and 1990, to about 36 percent.

Table II.6 presents these trade data adjusted for inflation to 1992 dollars. According to the table, in real terms, maquiladora imports from the United States rose by about 125 percent from 1985 to 1990, from about \$4.9 billion to about \$11 billion. The proportion of Mexico's imports from the United States that went to maquiladoras does not change when the data are adjusted for inflation.

While there are no U.S. government data available on exports to the maquiladora industry, estimates of such exports may be derived from U.S. trade data on imports from Mexico under HTS production-sharing provisions. This is the case because a large proportion of production-sharing imports are from maquiladoras. Further, production-sharing import data distinguish content that originated in the



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United States from value added in the foreign country. Thus, the portion of the production-sharing imports from Mexico that does not have duties can be used to estimate U.S. exports to the maquiladoras.

It is not known how accurate such estimates are. One reason they might be inaccurate may be that some U.S. exports to maquiladoras are not returned by the maquiladoras to the United States under production-sharing tariff provisions. For example, U.S. exports of capital equipment to a maquiladora generally are returned to the United States only when the maquiladora ceases operations. Similarly, as we have previously testified,<sup>6</sup> production-sharing imports exclude imports from maquiladoras that are imported under other U.S. tariff provisions, such as the Generalized System of Preferences.<sup>7</sup> Another reason may be that some maquiladora production containing U.S. content is not exported back to the United States at all, but is sold inside Mexico or exported to other countries.<sup>8</sup>

Although this technique has limitations, it is the method generally used to estimate U.S.-maquiladora trade. We used this technique to estimate the proportion of U.S. merchandise exports that went to maquiladoras for 1985-90 (the same years for which Mexican data were available). This information is displayed in table II.7. The table shows that, in nominal terms, the United States exported about \$6.5 billion of goods to maquiladoras in 1990, up from about \$3 billion in 1985, an increase of about 121 percent. According to the table, about 24 percent of U.S. exports to Mexico in 1990 went to maquiladora firms, about the same proportion as the nearly 23 percent in 1985. U.S. production-sharing data also are available for 1991, and indicate that the percentage fell, from about 24 percent in 1990 to about 22 percent. For the entire 1985-91 period, about 25 percent of U.S. exports to Mexico went to the maquiladora industry.

Table II.8 shows this trade in 1992 dollars. The table shows that, in real terms, U.S. exports to maquiladoras nearly doubled between 1985 and 1990, from about \$3.8 billion to about \$7 billion. The share of U.S. exports to Mexico that went to maquiladoras does not change when the data are adjusted for inflation.

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<sup>6</sup>U.S. Trade Data: Limitations of U.S. Statistics on Trade with Mexico (GAO/T-GGD-93-25, Apr. 28, 1993).

<sup>7</sup>The Generalized System of Preferences is a program under which the United States grants duty-free status on selected products to certain developing nations and territories. Mexico is the largest participant in this program.

<sup>8</sup>Mexican law permits maquiladoras to sell some of their production inside Mexico.

We do not know whether the estimates of U.S.-maquiladora trade derived from U.S. production-sharing imports are more accurate than estimates derived from Mexican import data. However, both methods show that the proportion of U.S. exports to Mexico that went to maquiladoras rose from 1985 to 1987, and then fell between 1987 and 1990. The trend of these data suggests that, between 1987 and 1990, the share of U.S. exports to Mexico that was processed and exported back to the United States may have fallen slightly relative to the share that directly entered the Mexican market.

Our estimates of the share of the top 10 U.S. manufactured exports to Mexico that went to maquiladoras during 1989-92 are displayed in table II.9.<sup>9</sup> However, these statistics do not provide a complete picture of maquiladora industry trade patterns in individual product categories. In some cases, items the United States exports to maquiladoras under one HTS classification may, after being assembled, return to the United States under a different HTS classification. For example, wire exported from the United States to maquiladoras can be returned to the United States as an automotive part. Thus, estimates of the share of U.S.-Mexican trade in particular products that involves maquiladoras can be misleading.

Table II.9 shows that U.S. exports to maquiladoras of these 10 commodities grew from about \$1.9 billion in 1989 to about \$2.6 billion in 1992, an increase of about 40 percent. However, table II.9 shows that the percent of U.S. exports to Mexico of these 10 commodities that went to maquiladoras fell during this period, from about 35 percent in 1989 to about 28 percent in 1992. Table II.10 shows U.S.-Mexican trade in these 10 commodities in 1992 dollars.

Information on the top manufactured export category, certain motor vehicle parts and accessories, is presented in table II.11. As the table indicates, U.S. exports of these items to maquiladoras nearly doubled in nominal terms between 1989 and 1992, from \$501 million to \$960 million. The table also shows that the share of U.S. exports of motor vehicle parts and accessories that went to maquiladoras fell from about 26 percent in 1989 to about 20 percent in 1990, but rose to about 25 percent by 1992. Table II.12 shows the same information in 1992 dollars.

<sup>9</sup>An ITC official told us that production-sharing import data for these 10 products are not available before 1989 because they were recorded under the former Tariff Schedule of the United States and were not converted.

Information on the value of U.S. exports to Mexico of each of the top 10 commodities is presented in table II.13. The same data, adjusted for inflation to 1992 dollars, are shown in table II.14.

## Impact on U.S. Employment of Growth in Trade With Mexico

Proponents of NAFTA contend that the recent increase in U.S. exports to Mexico—including exports to maquiladoras—supports many U.S. jobs. However, critics of NAFTA assert that the maquiladora industry has displaced U.S. workers and that, therefore, U.S. exports to maquiladoras on balance do not support U.S. jobs. Several studies that we reviewed tried to estimate maquiladoras' effect on U.S. employment levels. These estimates varied widely, in large part because they used different methodologies. Moreover, all of these methodologies have inherent limitations, and the conclusions they reached are very sensitive to assumptions used in the analyses. Thus, it is difficult to determine which of these studies offers the best estimate of the effect the maquiladora industry has had on U.S. employment.

However, the studies generally agreed that, while U.S. exports to maquiladoras support some U.S. jobs, the assembly and return of these exports to the United States have supplanted U.S. jobs in some companies. Therefore, it is important to assess the impact of both exports to and imports from maquiladoras when evaluating the impact of trade with Mexico on U.S. employment patterns.

## Employment Impact of Growth in U.S. Exports to Mexico

The U.S. Department of Commerce has estimated that U.S. merchandise exports to Mexico in 1990 supported about 538,000 U.S. jobs. According to Commerce, this is an increase of about 75 percent since 1985, reflecting the rise in U.S. exports to Mexico during that period. Similarly, the Office of the U.S. Trade Representative (USTR), extrapolating from Commerce's analysis, estimated that the number of jobs supported by U.S. exports to Mexico in 1992 had risen to about 700,000. The Commerce study estimated that about 135,000 of the 538,000 jobs supported by exports to Mexico in 1990 were supported by exports to maquiladoras. The USTR study did not indicate how many jobs supported in 1992 by U.S. exports to Mexico were attributable to maquiladoras. Neither analysis included an evaluation of the employment effect of U.S. imports from Mexico.

## Analyses of the Maquiladora Industry's U.S. Employment Impact

Maquiladora industry proponents assert that maquiladoras allow U.S. firms to be more competitive by lowering their costs of production relative to competitors in other countries. They say that this effect permits certain

U.S. industries to remain internationally competitive by allowing companies to move high labor-cost operations to Mexico, thus allowing them to retain some U.S. jobs that otherwise would be lost to other low-wage countries. In contrast, U.S. labor unions maintain that maquiladora operations have resulted in the loss of many U.S. jobs. They cite many instances of factories in the United States closing and reopening in Mexico as maquiladoras, and note that a decline in U.S. employment in some industries has coincided with increases in maquiladora employment. They imply that there is a one-to-one relationship between jobs gained in the maquiladora industry and jobs lost in the United States.

A number of analyses done in the late 1980s have tried to estimate what effect maquiladoras or other production-sharing arrangements have had on U.S. employment. These studies usually have attempted either to (1) quantify the number of U.S. jobs supported by maquiladoras or other production-sharing arrangements or (2) predict the impact that repealing production-sharing tariff provisions would likely have on U.S. employment. According to a U.S. Department of Labor review of some of these studies,<sup>10</sup> they generally have used one or more of five methods:

- Survey approach: Asking U.S. companies involved in maquiladora operations how many U.S. jobs those operations support and how they would respond to repeal of production-sharing provisions.
- Cost accounting approach: Evaluating the costs to a firm of pursuing a new course of action in the event of repeal of production-sharing provisions.
- Labor content analysis: Estimating how many U.S. jobs would be needed to produce what maquiladoras produce, and then predicting how much maquiladora production would return to the United States were production-sharing provisions repealed.
- Partial equilibrium analysis: Measuring the effects of repeal of production-sharing provisions on those U.S. industries directly affected by the repeal. The only factor assumed to change as a result of the repeal is the price of the imported production-sharing items.
- Macroeconomic models: Assessing the effect of repeal on all sectors of the U.S. economy simultaneously.

Although these studies of maquiladoras' effect on U.S. employment disagree on the precise impact, they generally agree that maquiladoras support some U.S. jobs but have displaced others. According to these

<sup>10</sup>Gregory K. Schoepfle and Jorge F. Perez-Lopez, U.S. Employment Impact of TSUS 806.30 and 807.00 Provisions and Mexican Maquiladoras: A Survey of Issues and Estimates, U.S. Department of Labor (Washington, D.C.: Aug. 1988).

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studies, most of the U.S. jobs supported are associated with the production and transport of U.S.-made components that the United States exports to maquiladoras for assembly. Maquiladoras, for the most part, assemble these U.S.-made components and return them to the United States. Consequently, most of the U.S. jobs lost to maquiladoras have been assembly jobs. The value-added component of U.S. imports from maquiladoras reflects the value added in this assembly process.

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## Limits of the Studies

The Labor Department study stressed that surveys that have tried to quantify the number of U.S. jobs production-sharing provisions support can be unreliable because respondents may give self-serving answers. Also, in some cases, the quality of surveys—collection methodologies, response rates, sample sizes—varies widely from one survey to another. In addition, these surveys in some cases attempt to estimate the impact of repealing production-sharing provisions only on selected companies or regions, not on whole industries nor on the entire U.S. economy.

In 1989, for example, a consulting firm, relying in large part on surveys of maquiladora managers, concluded that one county in Texas gained approximately 23,415 jobs from the presence of maquiladoras in the city of Reynosa, Mexico.<sup>11</sup> This result suggested that maquiladoras supported a far larger number of U.S. jobs nationwide.

The other four methods require making assumptions about how consumers and companies would react to repeal, including how much maquiladora production would return to the United States. For instance, a 1988 ITC study, using labor content and partial equilibrium approaches, concluded that, even assuming that repeal of production-sharing provisions would cause all maquiladora production to return to the United States, the U.S. employment impact would be modest. Applying this assumption, ITC found that in the short run the United States might lose about 37,000 jobs supported by U.S. exports to maquiladoras and gain about 64,000 jobs that were equivalent to maquiladoras' production.<sup>12</sup> The jobs gained would be mostly assembly jobs.

However, ITC considered this to be an unrealistic assumption because in most cases duties represent a small portion of a maquiladora's production

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<sup>11</sup>The Economic Impact of Maquiladoras on the McAllen-Hidalgo County Area, M. Ray Perryman Consultants, Inc. (Waco, Texas: Mar. 1989).

<sup>12</sup>The Uses and Economic Impact of TSUS Items 806.30 and 807.00, U.S. International Trade Commission (Washington, D.C.: Jan. 1988).

costs. Therefore, repeal would not lead to relocation of much maquiladora production away from Mexico, back to the United States. ITC therefore modified this extreme assumption by assuming that a more realistic price effect would lead to a smaller increase in U.S. production. Under this scenario, ITC estimated that the employment impact would be much smaller. Under this assumption, about 5,000 of the jobs dependent on U.S. exports to maquiladoras might have been eliminated, and about 6,000 assembly jobs might have returned to the United States.<sup>13</sup>

On the other hand, in 1988 a U.S. economic forecasting company, Wharton Econometric Forecasting Associates (WEFA), under contract to the Department of Labor, used a macroeconomic model and found that eliminating HTS production-sharing provision 9802.00.80 for Mexico would result in net output losses corresponding to about 76,000 U.S. jobs in 1992.<sup>14,15</sup> In this study, WEFA also estimated that, if, alternatively, the Mexican government were to eliminate the maquiladora program, net output losses corresponding to about 92,000 U.S. jobs would result in 1992. This study assumed that U.S. imports from countries other than Mexico would increase as a result of repeal of production-sharing provisions and that U.S. output would decrease because of higher U.S. prices and lower demand for U.S.-made components.

### An Assessment of Trade's Employment Impact Should Consider Both Exports and Imports

To assess the overall impact of U.S.-Mexican trade on U.S. employment, we believe it is necessary to consider the effects of U.S. imports from maquiladoras as well as U.S. exports to maquiladoras. However, it is difficult to assess the effects of imports from Mexico because doing so requires making assumptions about the extent to which Mexican goods displace U.S. domestic production and imports from other countries. The ITC study used several such assumptions in estimating maquiladoras' U.S. employment impact. The results of the ITC's analysis were very sensitive to these assumptions. The more realistic scenario presented by ITC led to virtually no net job impact. On the other hand, WEFA's study implicitly estimated the displacement effect, but, unlike the ITC study, concluded that

<sup>13</sup>ITC warned the reader that it is improper to subtract these estimates of employment losses from employment gains to calculate the long-run U.S. employment impact because employment levels in the long run are determined by other factors, such as population growth. In the long run, changing trade patterns can affect the distribution of jobs among sectors in an economy, but not its overall employment level.

<sup>14</sup>The Implication for the U.S. Economy of Tariff Schedule Item 807 and Mexico's Maquila Program, Wharton Econometric Forecasting Associates (Bala Cynwyd, PA: 1988).

<sup>15</sup>About 99 percent of production-sharing imports into the United States enter under provision 9802.00.80.

the repeal of production-sharing provisions would reduce U.S. employment. These conclusions illustrate the varied results that can be derived from differing methodologies and assumptions in employment impact analyses.

Moreover, a full analysis of the impact of maquiladoras on U.S.-Mexican trade and U.S. employment should take into account the direct impact of the maquiladora program on U.S. trade patterns with the rest of the world. For example, such an analysis should consider the extent to which the United States would import from other countries the goods that it now imports from Mexico under the maquiladora program. In addition, because services trade is an important part of U.S.-Mexican trade, a full evaluation of the effect of U.S.-Mexican trade on U.S. employment patterns should include trade in services, including an evaluation of the extent to which the maquiladora program might affect services trade.

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## Agency Comments

In June 1993 we discussed the content of this report with responsible officials at the Departments of Commerce and Labor, and at ITC. They generally agreed with the report's overall message, and their comments have been incorporated as appropriate.

As you requested, we plan no further distribution of this report until 30 days after its issue date. At that time, we will send copies to the Secretaries of Commerce and Labor, the Chairman of the U.S. International Trade Commission, and the Acting Director of the Bureau of the Census. We will also make copies available to other interested parties upon request.

Please contact me on (202) 512-4812 if you have any questions concerning this report. The major contributors to this report were Curtis Turnbow, Assistant Director; Anthony L. Hill, Evaluator-in-Charge; and David Genser, Evaluator.



Allan I. Mendelowitz, Director  
International Trade, Finance,  
and Competitiveness

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**Abbreviations**

f.a.s.	Free alongside ship
f.o.b.	Free on board
GAO	General Accounting Office
HTS	Harmonized Tariff Schedule of the United States
ITC	U.S. International Trade Commission
NAFTA	North American Free Trade Agreement
USTR	Office of the U.S. Trade Representative
WEFA	Wharton Econometric Forecasting Associates

# Objectives, Scope, and Methodology

Our objectives were to (1) determine how U.S. trade with Mexico's maquiladora industry has affected recent growth in U.S.-Mexican trade, especially trade in the top 10 U.S. manufactured exports to Mexico; and (2) review studies that have attempted to determine how the maquiladora program has affected U.S. employment.

In order to determine how U.S. trade with Mexico's maquiladora industry has affected recent growth in U.S.-Mexican trade, we obtained and analyzed 1985-92 U.S. merchandise trade data from the U.S. Bureau of the Census and the U.S. International Trade Commission (ITC). We defined the top 10 manufactured commodities at the 4-digit level of Harmonized Tariff Schedule of the United States (HTS). The top manufactured export category was certain motor vehicle parts and accessories. However, many motor vehicle parts and accessories are not included in the 4-digit HTS motor vehicle parts and accessories category. Therefore, to obtain a more accurate picture of trade in automotive parts and accessories, we used a broader definition obtained from ITC. The ITC's definition includes some items that are not part of the 4-digit HTS definition, such as tires and automotive glass and furniture.

We obtained Mexican government 1985-90 import data from the International Monetary Fund's 1992 Direction of Trade Statistics Yearbook. We obtained Mexican government 1985-90 data on the maquiladora industry's imports from a prior GAO report<sup>1</sup> and used these data as appropriate in this report. We did not verify the data received from the Mexican government or the sources it used.

To analyze the results of studies that have assessed how the maquiladora program has affected employment in the United States, we reviewed the literature to identify research studies that have attempted to measure this effect. Further, we interviewed U.S. government officials at the Department of Labor knowledgeable about the maquiladora program and its U.S. employment effect. To obtain the views of U.S. industry and U.S. labor unions, we judgmentally selected and obtained the views of representatives from some of these organizations. For industry, we selected the largest company in a major industry that is involved in maquiladora operations. For labor, we selected two large unions that have alleged that their members have lost jobs due to the maquiladora program.

<sup>1</sup>North American Free Trade Agreement: U.S.-Mexican Trade and Investment Data (GAO/GGD-92-131, Sept. 25, 1992).

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**Appendix I  
Objectives, Scope, and Methodology**

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We did our work between January and June 1993 in accordance with generally accepted government auditing standards.

# U.S. Trade With Mexico, Including Mexico's Maquiladora Industry

**Table II.1: U.S. Merchandise Trade With Mexico In 1985 and 1992 in the Top 10 Manufactured Goods the United States Exported to Mexico in 1992**

U.S. dollars in millions

Commodity	Exports 1985	Imports 1985	Trade balance 1985 <sup>a</sup>	Exports 1992	Imports 1992	Trade balance, 1992	Change in trade balance 1985-92
Certain parts and accessories for motor vehicles	\$861	\$409	\$452	\$3,833	\$1,763	\$2,071	\$1,619
Insulated wire, cable etc.; optical sheath fiber cables <sup>b</sup>	337	608	(271)	1,102	1,863	(761)	(490)
Parts for television, radio and radar apparatus	111	455	(344)	787	788	(1)	343
Aircraft, powered; spacecraft and launch vehicles	124	0	124	702	<sup>c</sup>	702	578
Automatic data processing machines; magnetic readers, etc.	131	181	(49)	560	449	110	160
Parts for internal combustion piston engines <sup>b</sup>	334	47	287	470	158	313	25
Seats (except barber, dental, etc.), and parts thereof <sup>b</sup>	32	103	(71)	467	531	(65)	7
Electric transformers, static converters and inductors, and parts thereof	80	197	(117)	458	530	(72)	45
Parts, etc., for typewriters and other office machines	305	107	199	451	432	20	(179)
Articles of plastics (including polymers and resins)	58	39	19	451	129	322	303
<b>Totals</b>	<b>\$2,374</b>	<b>\$2,146</b>	<b>\$228</b>	<b>\$9,281</b>	<b>\$6,643</b>	<b>\$2,638</b>	<b>\$2,411</b>

(Table notes on next page)

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**Appendix II**  
**U.S. Trade With Mexico, Including Mexico's**  
**Maquiladora Industry**

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Note 1: Merchandise exports consist of "domestic exports." According to the Guide to Foreign Trade Statistics, U.S. Bureau of the Census, (Washington, D.C.: U.S. Government Printing Office, 1991), "exports of domestic merchandise include commodities which are grown, produced or manufactured in the United States, and commodities of foreign origin which have been changed in the United States, including U.S. Foreign Trade Zones, from the form in which they were imported, or which have been enhanced in value by further manufacture in the United States."

Note 2: Merchandise imports consist of "imports for consumption." According to the Guide to Foreign Trade Statistics, "imports for consumption measure the total of merchandise that has physically cleared through Customs either entering consumption channels immediately or entering after withdrawal for consumption from bonded warehouses under Customs custody or from Foreign Trade Zones." Many countries use the term "special imports" to designate statistics compiled on this basis.

Note 3: Domestic exports are on a free-alongside-ship (f.a.s.) value basis; imports for consumption are Customs value basis.

Note 4: Trade balances and totals may not add due to rounding.

Note 5: Data for 1985 are estimated because they originally were recorded under the Tariff Schedule of the United States of America and had to be converted to the Harmonized Tariff Schedule (HTS).

Note 6: The data in this table should be interpreted cautiously because these data do not provide a complete picture of trade patterns in individual product categories. In some cases a commodity exported to a maquiladora under one tariff classification may, after being assembled, return to the United States under a different tariff classification.

<sup>a</sup>Parentheses signify a U.S. trade deficit.

<sup>b</sup>A large share of U.S. exports of these items to Mexico, while not identified as motor vehicle parts and accessories at the 4-digit HTS level, is used as motor vehicle parts and accessories.

<sup>c</sup>Less than \$500,000.

Source: U.S. Bureau of the Census.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.2: U.S. Merchandise Trade With Mexico in 1985 and 1992 in the Top 10 Manufactured Goods the United States Exported to Mexico in 1992, in Inflation-Adjusted Dollars**

1992 U.S. dollars in millions

Commodity	Exports 1985	Imports 1985	Trade balance 1985 <sup>a</sup>	Exports 1992	Imports 1992	Trade balance 1992	Change in trade balance 1985 to 1992
Parts and accessories for motor vehicles	\$1,103	\$524	\$578	\$3,833	\$1,763	\$2,071	\$1,492
Insulated wire, cable etc.; optical sheath fiber cables <sup>b</sup>	432	778	(347)	1,102	1,863	(761)	(414)
Parts for television, radio and radar apparatus	143	583	(440)	787	788	(1)	440
Aircraft, powered; spacecraft and launch vehicles	158	0	158	702	<sup>c</sup>	702	543
Automatic data processing machines; magnetic readers, etc.	168	231	(63)	560	449	110	173
Parts for internal combustion piston engines <sup>b</sup>	428	60	368	470	158	313	(55)
Seats (except barber, dental, etc.), and parts thereof <sup>b</sup>	41	132	(91)	467	531	(65)	27
Electric transformers, static converters and inductors, and parts thereof	102	252	(150)	458	530	(72)	78
Parts, etc., for typewriters and other office machines	391	137	254	451	432	20	(235)
Articles of plastics (including polymers, resins)	75	50	25	451	129	322	297
<b>Totals</b>	<b>\$3,040</b>	<b>\$2,748</b>	<b>\$292</b>	<b>\$9,281</b>	<b>\$6,643</b>	<b>\$2,638</b>	<b>\$2,347</b>

Note 1: Trade data are adjusted for inflation using the implicit gross domestic product price deflator as published in the January 1993 Economic Report of the President.

Note 2: Merchandise exports consist of domestic exports valued on an f.a.s. basis. Merchandise imports consist of imports for consumption valued on a Customs value basis.

Note 3: Trade balances and totals may not add due to rounding.

Note 4: Data for 1985 are estimated because they originally were recorded under the Tariff Schedule of the United States of America and had to be converted to the HTS.

Note 5: The data in this table should be interpreted cautiously because these data do not provide a complete picture of trade patterns in individual product categories. In some cases a commodity exported to a maquiladora under one tariff classification may, after being assembled, return to the United States under a different tariff classification.

<sup>a</sup>Parentheses signify a U.S. trade deficit.

<sup>b</sup>A large share of U.S. exports of these items to Mexico, while not identified as motor vehicle parts and accessories at the 4-digit HTS level, is used as motor vehicle parts and accessories.

<sup>c</sup>Less than \$500,000.

Source: Derived from U.S. Bureau of the Census data.

**Appendix II**  
**U.S. Trade With Mexico, Including Mexico's**  
**Maquiladora Industry**

**Table II.3: U.S. Merchandise Trade With Mexico in 1985 and 1992 in Motor Vehicle Parts and Accessories, and in Passenger Automobiles and Light Trucks**

U.S. dollars in millions

Commodity	Exports 1985	Imports 1985	Trade balance 1985 <sup>a</sup>	Exports 1992	Imports 1992	Trade balance 1992	Change in trade balance 1985-1992
Motor vehicle parts and accessories	\$1,861	\$2,121	(\$260)	\$5,706	\$5,035	\$671	\$931
Passenger automobiles and light trucks	6	310	(304)	119	3,045	(2,926)	(2,622)

Note 1: U.S. exports consist of domestic exports valued on an f.a.s. basis; imports are imports for consumption on a Customs value basis.

Note 2: Data for 1985 are estimated because they originally were recorded under the Tariff Schedule of the United States of America and had to be converted to the HTS.

<sup>a</sup>Parentheses signify a U.S. trade deficit.

Sources: U.S. International Trade Commission; U.S. Bureau of the Census.

**Table II.4: U.S. Trade With Mexico in 1985 and 1992 in Motor Vehicle Parts and Accessories, and in Passenger Automobiles and Light Trucks, in Inflation-Adjusted Dollars**

1992 U.S. dollars in millions

Commodity	Exports 1985	Imports 1985	Trade balance 1985 <sup>a</sup>	Exports 1992	Imports 1992	Trade balance 1992	Change in trade balance 1985-1992
Motor vehicle parts and accessories	\$2,384	\$2,716	(\$333)	\$5,706	\$5,035	\$671	\$1,004
Passenger automobiles and light trucks	7	397	(389)	119	3,045	(2,926)	(2,536)

Note 1: Trade data are adjusted for inflation using the implicit gross domestic product price deflator as published in the January 1993 Economic Report of the President.

Note 2: U.S. exports consist of domestic exports valued on an f.a.s. basis; imports are imports for consumption on a Customs value basis.

Note 3: Data for 1985 are estimated because they originally were recorded under the Tariff Schedule of the United States of America and had to be converted to the HTS.

<sup>a</sup>Parentheses signify a U.S. trade deficit.

Sources: Derived from U.S. International Trade Commission and U.S. Bureau of the Census data.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.5: Proportion of Mexico's 1985-90 Imports From the United States That Went to Maquiladoras** (Using Mexican Government Import Data)

U.S. dollars in millions

<b>Year</b>	<b>Mexico's imports from the United States, excluding imports by maquiladoras <sup>a</sup></b>	<b>Maquiladoras' imports from the United States<sup>b</sup></b>	<b>Mexico's imports from the United States, including maquiladoras' imports</b>	<b>Percentage of Mexico's imports from the United States that went to maquiladoras</b>
1985	\$8,954	\$3,826	\$12,780	29.9
1986	7,574	4,351	11,925	36.5
1987	8,252	5,507	13,759	40.0
1988	13,043	7,808	20,851	37.4
1989	15,554	9,328	24,882	37.5
1990	18,160	10,321	28,481	36.2

Note: Imports are valued on a free-on-board (f.o.b.) basis.

<sup>a</sup>The Mexican government, unlike the U.S. government, excludes maquiladora trade in its merchandise trade account. Instead, the value added from maquiladora operations is included in a separate category of Mexico's current account entitled "servicios por transformacion."

<sup>b</sup>According to the Banco de Mexico, almost 100 percent of the maquiladora industry's total imports and exports are traded with the United States. Thus, maquiladoras' imports from the world are used to approximate the maquiladora industry's imports from the United States. By attributing the origin of 100-percent maquiladoras' imports to the United States, we have an upper-bound approximation of the share of U.S. trade with Mexico that went to maquiladoras.

Sources: International Monetary Fund's 1992 Direction of Trade Statistics Yearbook; Banco de Mexico.



**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.6: Proportion of Mexico's 1985-90 Imports From the United States That Went to Maquiladoras, in Inflation-Adjusted Dollars (Using Mexican Government Import Data)**

1992 U.S. dollars in millions

<b>Year</b>	<b>Mexico's imports from the United States, excluding imports by maquiladoras <sup>a</sup></b>	<b>Maquiladoras' imports from the United States<sup>b</sup></b>	<b>Mexico's imports from the United States, including maquiladoras' imports</b>	<b>Percentage of Mexico's imports from the United States that went to maquiladoras</b>
1985	\$11,468	\$4,900	\$16,368	29.9
1986	9,450	5,429	14,879	36.5
1987	9,977	6,658	16,635	40.0
1988	15,177	9,086	24,263	37.4
1989	17,332	10,394	27,726	37.5
1990	19,395	11,023	30,418	36.2

Note 1: Trade data are adjusted for inflation using the implicit gross domestic product price deflator as published in the January 1993 Economic Report of the President.

Note 2: Imports are valued on an f.o.b. basis.

<sup>a</sup>The Mexican government, unlike the U.S. government, excludes maquiladora trade in its merchandise trade account. Instead, the value added from maquiladora operations is included in a separate category of Mexico's current account entitled "servicios por transformacion."

<sup>b</sup>According to the Banco de Mexico, almost 100 percent of the maquiladora industry's total imports and exports are traded with the United States. Thus, maquiladoras' imports from the world are used to approximate the maquiladora industry's imports from the United States. By attributing the origin of 100-percent maquiladoras' imports to the United States, we have an upper-bound approximation of the share of U.S. trade with Mexico that went to maquiladoras.

Sources: Derived from data in the International Monetary Fund's 1992 Direction of Trade Statistics Yearbook and from Banco de Mexico data.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.7: Proportion of 1985-90 U.S. Merchandise Exports to Mexico That Went to the Maquiladora Industry** (Derived From U.S. Government Trade Data)

U.S. dollars in millions

Year	Exports to Mexico	Change from prior year <sup>a</sup>	U.S. exports to maquiladoras <sup>b</sup>	Change from prior year	Percent of U.S. exports to Mexico that went to maquiladoras
1985	\$13,084	•	\$2,956	•	22.6
1986	11,925	(\$1,159)	3,401	\$445	28.5
1987	14,045	2,120	4,493	1,093	32.0
1988	19,853	5,808	5,404	910	27.2
1989	24,117	4,264	6,111	708	25.3
1990	27,468	3,350	6,526	414	23.8

Note 1: U.S. exports consist of domestic exports valued on an f.a.s. basis; imports are imports for consumption on a Customs value basis.

Note 2: Data before 1989 are estimated because they originally were recorded under the Tariff Schedule of the United States of America and had to be converted to the HTS.

<sup>a</sup>Parentheses indicate a negative number.

<sup>b</sup>We estimated U.S. exports to maquiladoras using data on U.S. imports from Mexico under production-sharing provisions 9802.00.60 and 9802.00.80. Under these provisions, certain products assembled in foreign countries from U.S.-made components are only subject to duties on the value added in the foreign country. Imports from Mexico under these arrangements can be used to estimate U.S. imports from maquiladora firms because there are indications that a large proportion of these imports are from maquiladoras. Further, because most U.S. exports to maquiladora companies are then returned from the maquiladoras as exports to the United States, the portion of the production-sharing imports from Mexico that does not have duties—that is, that which originated in the United States—can be used to estimate U.S. exports to the maquiladoras.

Sources: Derived by GAO from U.S. Bureau of the Census and U.S. International Trade Commission data.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.8: Proportion of 1985-90 U.S. Exports to Mexico That Went to the Maquiladora Industry, in Inflation-Adjusted Dollars (Derived From U.S. Government Trade Data)**

1992 U.S. dollars in millions

<b>Year</b>	<b>Exports to Mexico</b>	<b>Change from prior year<sup>a</sup></b>	<b>U.S. exports to maquiladoras<sup>b</sup></b>	<b>Change from prior year</b>	<b>Percent of U.S. exports to Mexico that went to maquiladoras</b>
1985	\$16,752	•	\$3,786	•	22.6
1986	14,878	(\$1,879)	4,243	\$458	28.5
1987	16,981	2,102	5,433	1,189	32.0
1988	23,102	6,121	6,288	855	27.2
1989	26,874	3,772	6,810	522	25.3
1990	29,336	2,462	6,970	160	23.8

Note 1: Trade data are adjusted for inflation using the implicit gross domestic product price deflator as published in the January 1993 Economic Report of the President.

Note 2: U.S. exports consist of domestic exports valued on an f.a.s. basis; imports are imports for consumption on a Customs value basis.

Note 3: Data before 1989 are estimated because they originally were recorded under the Tariff Schedule of the United States of America and had to be converted to the HTS.

<sup>a</sup>Parentheses indicate a negative number.

<sup>b</sup>We estimated U.S. exports to maquiladoras using data on U.S. imports from Mexico under production-sharing provisions 9802.00.60 and 9802.00.80. Under these provisions, certain products assembled in foreign countries from U.S.-made components are only subject to duties on the value added in the foreign country. Imports from Mexico under these arrangements can be used to estimate U.S. imports from maquiladora firms because there are indications that a large proportion of these imports are from maquiladoras. Further, because most U.S. exports to maquiladora companies are then returned from the maquiladoras as exports to the United States, the portion of the production-sharing imports from Mexico that does not have duties—that is, that which originated in the United States—can be used to estimate U.S. exports to the maquiladoras.

Sources: Derived by GAO from U.S. Bureau of the Census and U.S. International Trade Commission data.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.9: Proportion of the Top 10  
U.S. Manufactured Exports to Mexico  
That Went to the Maquiladora Industry,  
1989-92**

U.S. dollars in millions

<b>Year</b>	<b>Exports to Mexico of the 10 products</b>	<b>Exports to maquiladoras<sup>a</sup></b>	<b>Percent of exports of the 10 products that went to maquiladoras</b>
1989	\$5,252	\$1,860	35.4
1990	6,369	1,907	29.9
1991	7,535	2,106	27.9
1992	9,281	2,610	28.1

Note 1: The 10 commodities are the top 10 manufactured commodities that the United States exported to Mexico in 1992. They are parts and accessories for motor vehicles; insulated wire, cable, and optical sheath fiber cables; parts for television, radio, and radar apparatus; aircraft, powered, and spacecraft and launch vehicles; automatic data processing machines and magnetic readers; parts for internal combustion piston engines; seats (except barber, dental, etc.) and parts thereof; electric transformers, static converters and inductors, and parts thereof; parts for typewriters and other office machines; and articles of plastics (including polymers and resins).

Note 2: U.S. merchandise exports are domestic exports valued on an f.a.s. basis. U.S. merchandise imports are imports for consumption on a Customs value basis.

<sup>a</sup>We estimated U.S. exports to maquiladoras using data on U.S. imports from Mexico under production-sharing provisions 9802.00.60 and 9802.00.80. Under these provisions, certain products assembled in foreign countries from U.S.-made components are only subject to duties on the value added in the foreign country. Imports from Mexico under these arrangements can be used to estimate U.S. imports from maquiladora firms because there are indications that a large proportion of these imports are from maquiladoras. Further, because most U.S. exports to maquiladora companies are then returned from the maquiladoras as exports to the United States, the portion of the production-sharing imports from Mexico that does not have duties—that is, that which originated in the United States—can be used to estimate U.S. exports to the maquiladoras.

Sources: Derived by GAO from U.S. Bureau of the Census and U.S. International Trade Commission data.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.10: Proportion of the Top 10  
U.S. Manufactured Exports to Mexico  
That Went to the Maquiladora Industry,  
1989-92, in Inflation-Adjusted Dollars**

1992 U.S. dollars in millions			
Year	Exports to Mexico of the 10 commodities	Exports to maquiladoras <sup>a</sup>	Percent of exports of the 10 commodities that went to maquiladoras
1989	\$5,852	\$2,072	35.4
1990	6,802	2,037	29.9
1991	7,733	2,161	27.9
1992	9,281	2,610	28.1

Note 1: Trade data are adjusted for inflation using the implicit gross domestic product price deflator as published in the January 1993 Economic Report of the President.

Note 2: The 10 commodities are the top 10 manufactured commodities that the United States exported to Mexico in 1992. They are parts and accessories for motor vehicles; insulated wire, cable, etc., and optical sheath fiber cables; parts for television, radio, and radar apparatus; aircraft, powered, and spacecraft and launch vehicles; automatic data processing machines and magnetic readers; parts for internal combustion piston engines; seats (except barber, dental, etc.) and parts thereof; electric transformers, static converters and inductors, and parts thereof; parts for typewriters and other office machines; and articles of plastics (including polymers and resins).

Note 3: U.S. merchandise exports are domestic exports valued on an f.a.s. basis; U.S. imports are imports for consumption on a Customs value basis.

<sup>a</sup>We estimated U.S. exports to maquiladoras using data on U.S. imports from Mexico under production-sharing provisions 9802.00.60 and 9802.00.80. Under these provisions, certain products assembled in foreign countries from U.S.-made components are only subject to duties on the value added in the foreign country. Imports from Mexico under these arrangements can be used to estimate U.S. imports from maquiladora firms because there are indications that a large proportion of these imports are from maquiladoras. Further, because most U.S. exports to maquiladora companies are then returned from the maquiladoras as exports to the United States, the portion of the production-sharing imports from Mexico that does not have duties—that is, that which originated in the United States—can be used to estimate U.S. exports to the maquiladoras.

Sources: Derived by GAO from U.S. Bureau of the Census and U.S. International Trade Commission data.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.11: Proportion of U.S. Exports to Mexico of Motor Vehicle Parts and Accessories That Went to the Maquiladora Industry, 1989-92**

U.S. dollars in millions

Year	Merchandise exports to Mexico	Merchandise exports to maquiladoras <sup>a</sup>	Percent of exports to Mexico that went to maquiladoras
1989	\$1,921	\$501	26.1
1990	2,825	559	19.8
1991	3,156	675	21.4
1992	3,833	960	25.0

Note 1: Motor vehicle parts and accessories are defined as HTS 8708.

Note 2: U.S. merchandise exports are domestic exports valued on an f.a.s. basis. U.S. production-sharing imports are imports for consumption on a Customs value basis.

<sup>a</sup>We estimated U.S. exports to maquiladoras using data on U.S. imports from Mexico under production-sharing provisions 9802.00.60 and 9802.00.80. Under these provisions, certain products assembled in foreign countries from U.S.-made components are only subject to duties on the value added in the foreign country. Imports from Mexico under these arrangements can be used to estimate U.S. imports from maquiladora firms because there are indications that a large proportion of these imports are from maquiladoras. Further, because most U.S. exports to maquiladora companies are then returned from the maquiladoras as exports to the United States, the portion of the production-sharing imports from Mexico that does not have duties—that is, that which originated in the United States—can be used to estimate U.S. exports to the maquiladoras.

Sources: Derived by GAO from U.S. Bureau of the Census and U.S. International Trade Commission.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.12: Proportion of U.S. Exports to Mexico of Motor Vehicle Parts and Accessories That Went to the Maquiladora Industry, 1989-92, in Inflation-Adjusted Dollars**

1992 U.S. dollars in millions			
Year	Merchandise exports to Mexico	Merchandise exports to maquiladoras <sup>a</sup>	Percent of exports to Mexico that went to maquiladoras
1989	\$2,141	\$559	26.1
1990	3,017	597	19.8
1991	3,239	693	21.4
1992	3,833	960	25.0

Note 1: Trade data are adjusted for inflation using the implicit gross domestic product price deflator as published in the January 1993 Economic Report of the President.

Note 2: Motor vehicle parts and accessories are defined as HTS 8708.

Note 3: U.S. merchandise exports are domestic exports valued on an f.a.s. basis. U.S. production-sharing imports are imports for consumption on a Customs value basis.

<sup>a</sup>We estimated U.S. exports to maquiladoras using data on U.S. imports from Mexico under production-sharing provisions 9802.00.60 and 9802.00.80. Under these provisions, certain products assembled in foreign countries from U.S.-made components are only subject to duties on the value added in the foreign country. Imports from Mexico under these arrangements can be used to estimate U.S. imports from maquiladora firms because there are indications that a large proportion of these imports are from maquiladoras. Further, because most U.S. exports to maquiladora companies are then returned from the maquiladoras as exports to the United States, the portion of the production-sharing imports from Mexico that does not have duties—that is, that which originated in the United States—can be used to estimate U.S. exports to the maquiladoras.

Sources: Derived by GAO from U.S. Bureau of the Census and U.S. International Trade Commission data.

**Appendix II  
U.S. Trade With Mexico, Including Mexico's  
Maquiladora Industry**

**Table II.13: Value of 1989-1992 U.S. Exports to Maquiladoras in Each of the Top 10 U.S. Manufactured Exports to Mexico**

U.S. dollars in millions		
Commodity	Exports to maquiladoras 1989	Exports to maquiladoras 1992
Parts and accessories for motor vehicles	\$501	\$960
Insulated wire, cable etc.; optical sheath fiber cables <sup>a</sup>	795	996
Parts for television, radio and radar apparatus	105	109
Aircraft, powered; spacecraft and launch vehicles	0	0
Automatic data processing machines; magnetic readers, etc.	110	92
Parts for internal combustion piston engines <sup>a</sup>	33	43
Seats (except barber, dental, etc.), and parts thereof <sup>a</sup>	64	41
Electric transformers, static converters and inductors, and parts thereof	165	220
Parts, etc., for typewriters and other office machines	63	109
Articles of plastics (including polymers, resins)	23	39
<b>Totals</b>	<b>\$1,860</b>	<b>\$2,610</b>

Note 1: Merchandise exports consist of domestic exports valued on an f.a.s. basis. Merchandise imports consist of imports for consumption valued on a Customs value basis.

Note 2: We estimated U.S. exports to maquiladoras using data on U.S. imports from Mexico under production-sharing provisions 9802.00.60 and 9802.00.80. Under these provisions, certain products assembled in foreign countries from U.S.-made components are only subject to duties on the value added in the foreign country. Imports from Mexico under these arrangements can be used to estimate U.S. imports from maquiladora firms because there are indications that a large proportion of these imports are from maquiladoras. Further, because most U.S. exports to maquiladora companies are then returned from the maquiladoras as exports to the United States, the portion of the production-sharing imports from Mexico that does not have duties—that is, that which originated in the United States—can be used to estimate U.S. exports to the maquiladoras.

Note 3: The data in this table should be interpreted cautiously because these data do not provide a complete picture of trade patterns in individual product categories. In some cases a commodity exported to a maquiladora under one tariff classification may, after being assembled, return to the United States under a different tariff classification.

Note 4: Totals may not add due to rounding.

<sup>a</sup>A large share of U.S. exports of these items to Mexico, while not identified as motor vehicle parts and accessories at the 4-digit HTS level, is used as motor vehicle parts and accessories.

Source: Derived by GAO from U.S. International Trade Commission data.



**Appendix II**  
**U.S. Trade With Mexico, Including Mexico's**  
**Maquiladora Industry**

**Table II.14: Value of 1989-1992 U.S. Exports to Maquiladoras in Each of the Top 10 U.S. Manufactured Exports to Mexico, in Inflation-Adjusted Dollars**

1992 U.S. dollars in millions		
<b>Commodity</b>	<b>Exports to maquiladoras 1989</b>	<b>Exports to maquiladoras 1992</b>
Parts and accessories for motor vehicles	\$559	\$960
Insulated wire, cable etc.; optical sheath fiber cables <sup>a</sup>	886	996
Parts for television, radio and radar apparatus	117	109
Aircraft, powered; spacecraft and launch vehicles	0	0
Automatic data processing machines; magnetic readers, etc.	122	92
Parts for internal combustion piston engines <sup>a</sup>	37	43
Seats (except barber, dental, etc.), and parts thereof <sup>a</sup>	72	41
Electric transformers, static converters and inductors, and parts thereof	184	220
Parts, etc., for typewriters and other office machines	70	109
Articles of plastics (including polymers, resins)	26	39
<b>Totals</b>	<b>\$2,072</b>	<b>\$2,610</b>

Note 1: Trade data are adjusted for inflation using the implicit gross domestic product price deflator as published in the January 1993 Economic Report of the President.

Note 2: Merchandise exports consist of domestic exports valued on an f.a.s. basis. Merchandise imports consist of imports for consumption valued on a Customs value basis.

Note 3: We estimated U.S. exports to maquiladoras using data on U.S. imports from Mexico under production-sharing provisions 9802.00.60 and 9802.00.80. Under these provisions, certain products assembled in foreign countries from U.S.-made components are only subject to duties on the value added in the foreign country. Imports from Mexico under these arrangements can be used to estimate U.S. imports from maquiladora firms because there are indications that a large proportion of these imports are from maquiladoras. Further, because most U.S. exports to maquiladora companies are then returned from the maquiladoras as exports to the United States, the portion of the production-sharing imports from Mexico that does not have duties—that is, that which originated in the United States—can be used to estimate U.S. exports to the maquiladoras.

Note 4: The data in this table should be interpreted cautiously because these data do not provide a complete picture of trade patterns in individual product categories. In some cases a commodity exported to a maquiladora under one tariff classification may, after being assembled, return to the United States under a different tariff classification.

Note 4: Totals may not add due to rounding.

<sup>a</sup>A large share of U.S. exports of these items to Mexico, while not identified as motor vehicle parts and accessories at the 4-digit HTS level, is used as motor vehicle parts and accessories.

Source: Derived by GAO from U.S. Bureau of the Census and U.S. International Trade Commission data.

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**Appendix II**  
**U.S. Trade With Mexico, Including Mexico's**  
**Maquiladora Industry**

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