

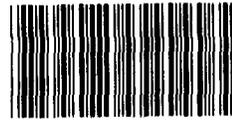
GAO

Report to the Chairman, Committee on
Energy and Commerce, House of
Representatives

April 1991

U.S.- MEXICO TRADE

Some U.S. Wood Furniture Firms Relocated From Los Angeles Area to Mexico



143855

National Security and
International Affairs Division

B-243621

April 24, 1991

The Honorable John Dingell
Chairman, Committee on Energy
and Commerce
House of Representatives

Dear Mr. Chairman:

As you requested, we obtained information on whether wood furniture manufacturers¹ have relocated from the Los Angeles area² to Mexico under the Mexican "maquiladora" program³ to avoid stringent California air pollution control standards. Specifically, in this report we (1) estimate how many wood furniture manufacturers in the Los Angeles area relocated to Mexico between January 1988 and December 1990, (2) discuss their reasons for relocating, and (3) provide information on whether Mexico has established standards to regulate wood furniture manufacturers' air pollution emissions from applying paint coatings and solvents.

Results in Brief

We estimate that about 1 to 3 percent of all the wood furniture manufacturers in the Los Angeles area (between 11 and 28 wood furniture manufacturers) relocated to Mexico between 1988 and 1990. We calculated that these relocations affected approximately 960 to 2,547 employees. About two-thirds of the relocations occurred among furniture manufacturers with 100 or more employees.

These relocations were attributable to a number of factors. About 83 percent of a sample of the firms we identified that had left Los Angeles for Mexico indicated that high costs for workers' compensation insurance and wages were major factors in their decision to relocate. About 78 percent of these manufacturers cited stringent air pollution emission control standards for paint coatings and solvents. However,

¹For this report we use the term "wood furniture manufacturers" to refer to manufacturers of wood kitchen cabinets, household furniture, television and radio cabinets, office furniture, public building furniture, and partitions and fixtures.

²The Los Angeles area encompasses all of Orange and parts of Los Angeles, Riverside, and San Bernardino counties. It is considered to have significant air pollution and the worst ozone problem in the United States.

³A system that allows duty-free importation of U.S. manufacturing components to factories in northern Mexico for processing or assembly with the general stipulation that the plants export their output.

because of the small number of firms in our sample that relocated to Mexico, we could not make a reliable comparison of the significance of the major reasons for relocating.

In the U.S.- Mexican border area, specifically in Tijuana, Mexico, we found that Mexico had not established standards to regulate wood furniture manufacturers' air pollution emissions from applying paint coatings and solvents. Consequently, wood furniture manufacturers who relocated to Mexico did not have to conform to air pollution control standards comparable to those in the Los Angeles area. Mexican environmental officials informed us that the issue of air pollution control standards was being studied to determine acceptable emission levels for wood furniture manufacturers' paint coatings and solvents applied in Tijuana.

Background

The Mexican government initiated the maquiladora program in 1965 to generate economic development and employment along Mexico's economically depressed northern border by attracting subassembly operations. Under the program, the government permits plants to import raw materials, components, and machinery free from Mexican import duties with the general stipulation that the plants export their output. The number of maquiladora assembly operations has grown steadily from 12 in 1965, employing approximately 3,000 workers, to over 1,800 in 1990, employing over 400,000 workers.

The U.S. Clean Air Act of 1970 required the Environmental Protection Agency (EPA) to set national air quality standards for ozone and other pollutants. Ozone, formed when emissions of volatile organic compounds⁴ combine with nitrogen oxides in the presence of heat and sunlight, has been linked to reduced lung function. The EPA national air quality ozone standard is to be implemented through state plans and programs approved by EPA. In California, the South Coast Air Quality Management District adopted rule 1136 in September 1983 to control the volatile organic compound emissions from wood furniture manufacturing in the Los Angeles area. Wood furniture operations that involve applying paint coatings and solvents to improve the product's appearance and durability will release volatile organic compounds in the air. Thus, the regulation of volatile organic compounds is an issue for the wood furniture manufacturers.

⁴Volatile organic compounds include methane hydrocarbons and nonmethane hydrocarbons.

In the Los Angeles area, rule 1136 sets volatile organic compound air pollution emission levels for over 10 types of paint coatings and solvents that wood furniture manufacturers use. In August 1988, rule 1136 was amended to set four deadlines by which more stringent volatile organic compound standards affecting wood furniture operations must be met. These deadlines are January 1, 1989; July 1, 1990; July 1, 1994; and July 1, 1996. The amended rule 1136 will reduce volatile organic compound emissions from wood coating operations by 93 percent, from a level of 22.1 tons per day in 1988, to 1.6 tons per day in 1996.

Extent of Wood Furniture Manufacturer Relocations

Based on the projections from our sample, we estimate that between 11 and 28, or about 1 to 3 percent, of all the wood furniture manufacturers in the Los Angeles area relocated all or part of their manufacturing operations to Mexico between 1988 and 1990. Our calculations indicated that these relocations resulted in the layoff of approximately 960 to 2,547 employees, or about 2 to 10 percent, of the wood furniture manufacturing employees in the Los Angeles area.

Most of the wood furniture manufacturers who relocated to Mexico were large companies with 100 or more employees. We estimate that between 1988 and 1990, about two-thirds of the wood furniture manufacturers that relocated to Mexico had 100 or more employees. These relocations affected between 953 and 2,530 employees, or about 5 to 14 percent of the workers employed in these larger manufacturing operations (see table I.2).

In addition to calculating relocations to Mexico, we estimate that between 3 and 100 wood furniture manufacturers relocated to areas within the United States such as Georgia, Michigan, and northern California. These relocations⁵ affected approximately 130 to 4,449 employees, or between 0.3 and 18 percent of the wood furniture manufacturing employees in the Los Angeles area. Further, we estimate that between 8 and 99 wood furniture manufacturers plan to relocate in the future and have invested in new locations. Such relocations would affect approximately 1,153 to 8,095 employees, or between 2 to 32 percent of the Los Angeles area wood furniture manufacturing employees.

⁵The confidence intervals are wide for the firms and employees affected because only a small number of firms in our sample relocated or planned to relocate.

Reasons for Relocations

In general, wood furniture manufacturers indicated that the major reasons for relocating to Mexico were high labor costs and stringent air pollution control standards in the Los Angeles area. Because of the small number of firms in our sample that relocated to Mexico, we could not make reliable comparisons of the significance of the major reasons for relocating.

About 83 percent of the manufacturers that we identified that had left Los Angeles for Mexico said that the high cost of workers' compensation insurance and wages were significant factors influencing their decision to relocate. In the Los Angeles area, wood furniture manufacturers paid an average of about \$1.75⁶ per hour for workers' compensation insurance. In Mexico, such manufacturers do not pay workers' compensation insurance directly. Instead, such insurance forms part of a social security tax, amounting to about \$0.13⁷ an hour, which also covers such benefits as retirement and sick and maternity leave. Also in the Los Angeles area, wood furniture workers earned an average of about \$8.92⁸ an hour; in Mexico, the average hourly earning for wood furniture workers under the maquiladora program is \$0.77.⁹

About 78 percent of the wood furniture manufacturers indicated that California's stringent air pollution control standard for paint coatings and solvents was a major factor in their decision to relocate. According to an official from a paint coating research and development center, wood furniture manufacturers use paint coatings, such as low-solids stain, that contain an average of 6.7-7.1 pounds of volatile organic compounds per gallon. As of July 1990, rule 1136 of the California South Coast Air Quality Management District set a volatile organic compound emission standard of 4 pounds for each gallon of these paint coatings. To meet this standard, wood furniture manufacturers have to use reformulated paint coatings. This reformulation has resulted in production delays. In addition, wood furniture manufacturers were not certain they could meet the even more stringent 1994 and 1996 standards.

⁶Calculated by GAO based on 1988 data from the state of California Workers' Compensation Insurance Rating Bureau and Employment Development Department. We used 1988 data for comparability with data obtained for Mexico.

⁷Calculated by GAO based on data obtained from Worker Rights in Export Processing Zones: Mexico, U.S. Department of Labor, Bureau of International Labor Affairs, vol.II (Washington, D.C.: Aug. 1990).

⁸Calculated by GAO based on 1988 data from the state of California's Employment Development Department. We used 1988 data for comparability with data obtained for Mexico.

⁹Worker Rights in Export Processing Zones: Mexico.

Incentives under the Mexican maquiladora program (i.e, duty-free imports, 100-percent foreign ownership, etc.) were cited by about 6 percent of the wood furniture manufacturers as major reasons for relocating.

Lack of Mexican Air Pollution Control Standards for Wood Furniture Manufacturers

As of December 1990, along the U.S.- Mexican border, specifically in Tijuana, Mexico, there was no established Mexican standard to regulate wood furniture manufacturers' air pollution emissions from applying paint coatings and solvents. Therefore, U.S. wood furniture manufacturers who relocated to Mexico were not held to air pollution control standards comparable to those in the Los Angeles area.

Officials from Mexico's Secretariat of Urban Development and Ecology, the government agency responsible for the environment, agreed that no standards had been established. They told us that, according to Mexico's laws and regulations, the Secretariat can require wood furniture manufacturers to meet the air pollution control standards it deems necessary when such businesses apply for their environmental permits to operate a manufacturing plant in Mexico. However, Secretariat officials added that the agency had not enforced this requirement because it is studying air pollution emissions from such manufacturers in order to determine acceptable standards. Secretariat officials did not know when this study would be completed.

In October 1989, however, the United States and Mexico entered into an environmental agreement regarding the international flow of urban air pollution. Annex V of the agreement provides for reduction of air pollution within urban communities along the "border area".¹⁰ Mutually agreed-upon study areas and selected pollutants are subject to the requirements of this annex.

For selected pollutants, the United States and Mexico agreed to determine the magnitude of emissions and identify each source, to specify appropriate control requirements, and to monitor pollutants in order to compare pollution concentrations produced by each urban area with the combined concentrations and existing meteorological conditions. Under the annex, the parties also agreed to jointly explore ways to harmonize air pollution control standards and ambient air quality standards. Wood

¹⁰The border area is defined as that area situated 100 kilometers on either side of the inland and maritime boundaries between Mexico and the United States.

furniture manufacturing involves air pollution emissions covered by the annex.

Appendix I provides details on the objectives, scope, and methodology of our review.

As requested, we did not obtain official agency comments on this report. We discussed the information contained in a draft of this report with responsible EPA, Department of State, and government of Mexico officials. Their comments have been incorporated in the report where appropriate.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date it is issued. At that time, we will send copies to the Secretary of State, the Administrator of EPA, and other interested parties. We will make copies available to others upon request.

Please contact me at (202) 275-4812 if you or your staff have any questions concerning this report. The major contributors to this report are listed in appendix II.

Sincerely yours,



Allan I. Mendelowitz, Director
International Trade, Energy,
and Finance Issues

Contents

Letter		1
Appendix I Objectives, Scope, and Methodology		10
Appendix II Major Contributors to This Report	National Security and International Affairs Division, Washington, D.C.	14
	Los Angeles Regional Office	14
Tables	Table I.1: Selected Los Angeles Area Wood Furniture Manufacturers	10
	Table I.2: Projections of Relocated Wood Furniture Manufacturers and Employee Layoffs Since 1988 at a 95-Percent Confidence Level	12

Abbreviations

EPA	Environmental Protection Agency
GAO	General Accounting Office

Objectives, Scope, and Methodology

The Chairman of the House Committee on Energy and Commerce requested that we (1) estimate the number of U.S. wood furniture manufacturers in the Los Angeles area that relocated to Mexico between January 1988 and December 1990, (2) identify their reasons for relocating, and (3) provide information on whether Mexico has established standards to regulate wood furniture manufacturers' air pollution emissions from applying paint coatings and solvents.

Using data compiled by Dun & Bradstreet, the South Coast Air Quality Management District, the Western Furnishings Manufacturers' Association, and the Cabinet Makers Association, we identified 2,675 firms that were thought to be furniture manufacturers operating in the Los Angeles area between January 1988 and December 1990. Dun & Bradstreet, as part of its broader business, collects information on the location, employees, and Standard Industrial Classification Codes of manufacturing plants in the United States. The South Coast Air Quality Management District maintains data on companies to which it has issued environmental permits. The Western Furnishings Manufacturers' Association and the Cabinet Makers Association maintain a listing of association members.

To determine the extent of relocations to Mexico by wood furniture manufacturers in the Los Angeles area, we selected a stratified random sample of 319 furniture manufacturers. We used Standard Industrial Classification Codes to stratify the sample by type of furniture manufacturer (see table I.1).

Table I.1: Selected Los Angeles Area Wood Furniture Manufacturers

Standard industrial classification codes	Type of furniture
2434	Kitchen cabinets
2511	Household furniture
2517	Television and radio cabinets
2521	Office furniture
2531	Public building furniture
2541	Partitions and fixtures

Because 32 furniture manufacturers in the sample declined to participate, we adjusted our random sample size to 287. We grouped the 287 manufacturers by size as follows: small (1-19 employees), medium (20-99 employees), large (100 or more employees). We contacted all of

the large furniture manufacturers in our sample. For each of the furniture manufacturers in our sample, we attempted to contact company officials and owners by telephone to determine such things as the company's product type and number of employees; whether the company was a wood furniture manufacturer; and whether it had actually closed, relocated, or experienced a significant layoff between 1988 and 1990.

The estimates of relocations and layoffs used in our analysis were calculated using the projected number of relocations or layoffs determined from our sample and the total number of furniture manufacturers in the Los Angeles area as determined by the sample. Our telephone survey showed that 146 of the 287 sample cases were actually wood furniture manufacturers. About 25 percent of the manufacturers were not wood furniture manufacturers, and 29 percent of the manufacturers had gone out of business or could not be contacted because they had no forwarding address or telephone number. Based on these sample results, we estimate that there were approximately 936-1,534 actual wood furniture manufacturers in the Los Angeles area. We are 95-percent confident that the projections of relocated wood furniture manufacturers and employee layoffs in the Los Angeles area are between the lower and upper limits of the range, as shown in table I.2.

Table I.2: Projections of Relocated Wood Furniture Manufacturers and Employee Layoffs Since 1988 at a 95-Percent Confidence Level

Manufacturers	Projections		
	Mid-point estimate	Lower limit	Upper limit
Total number in population	1,237	936	1,534
Number relocating to Mexico	18	11	28
Small firms (1-19 employees)	2	2	3
Medium firms (20-99 employees)	4	1	6
Large firms (100 or more employees)	12	8	19
Percent relocating to Mexico	1.5	0.7	3.0
Number relocating within the United States	41	3	100
Number planning to relocate	42	8	99
Number citing high labor costs	15	9	24
Number citing stringent air pollution control standards	14	8	23
Employees			
Total employed	37,390	25,292	48,067
Employed in large firms	17,505	9,875	21,185
Employees laid off from relocations to Mexico	1,513	960	2,547
Small firms	0	^a	^a
Medium firms	16	4	58
Large firms	1,497	953	2,530
Employees laid off as percent of total employed	4.0	2.0	10
Employees laid off as percent of large firms' employees	8.6	4.5	14
Employees laid off from relocations within United States	1,546	130	4,449
Employees laid off as percent from relocations within United States	4	0.3	18
Employees in firms planning to relocate	3,695	1,153	8,095
Employees as percent in firms planning to relocate	9.9	2	32

^aNumber was not calculated.

To determine the reasons why wood furniture manufacturers in our sample relocated to Mexico, we asked each manufacturer to identify the three primary factors that influenced their decision to relocate. We also obtained data on the volatile organic compound emission standards and costs of workers' compensation insurance and hourly wage rates in the Los Angeles area and Mexico.

To determine whether Mexico has established standards to regulate wood furniture manufacturers' air pollution emissions from paint coatings and solvents, we reviewed air pollution control standards in Mexico.

Some of this information was obtained during on-site work in the Los Angeles area, Mexico City, and the U.S.- Mexican border area. We also interviewed officials from the Department of State, EPA, Mexico's Secretariat of Urban Development and Ecology, the South Coast Air Quality Management District, and wood furniture manufacturer representatives regarding present and future air pollution control standards for their industry.

We conducted our work from March through December 1990 in accordance with generally accepted government auditing standards.

Major Contributors to This Report

**National Security and
International Affairs
Division,
Washington, D.C.**

**Elliott C. Smith, Assistant Director
Arthur J. Kendall, Mathematical Statistician**

**Los Angeles Regional
Office**

**Patrick F. Gormley, Regional Management Representative
Odilon R. Cuero, Evaluator-in-Charge
Larry S. Thomas, Evaluator
Maria I. Gonzalez, Evaluator
Charles D. Ireland, Technical Advisor
Melisa A. Hunt, Technical Advisor**

Ordering Information

The first five copies of each GAO report are free. Additional copies are \$2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

**U.S. General Accounting Office
P.O. Box 6015
Gaithersburg, MD 20877**

Orders may also be placed by calling (202) 275-6241.

**United States
General Accounting Office
Washington, D.C. 20548**

**Official Business
Penalty for Private Use \$300**

**First-Class Mail
Postage & Fees Paid
GAO
Permit No. G100**
