

An hourglass-shaped graphic with a globe inside. The top bulb is dark blue, and the bottom bulb is light blue. The globe is centered in the narrow neck of the hourglass. The text is centered within the hourglass.

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*NAFTA: Estimates of Job Effects and Industry Trade Trends
After 5-1/2 Years*

Mary Jane Bolle, Economics Division

December 14, 1999

Abstract. During the North American Free Trade Agreement's (NAFTA's) first five and one-half years, it has served primarily to accelerate trade, plant relocation, and sectoral job "gain" and job "loss" trends that were already ongoing. This report documents four and one-half years worth of trends, and includes six tables. They track overall U.S. commodities exports, imports and trade balance; imports and exports by industry; estimates of jobs supporting those exports, by state; and industry import and plant relocation effects translated into potential job losses, both by industry and state. A separate figure shows reemployment experience of displaced workers one to three years later.

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NAFTA: Estimates of Job Effects and Industry Trade Trends After 5½ Years

Updated December 14, 1999

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ABSTRACT

During the North American Free Trade Agreement (NAFTA)'s first five and one-half years, it has served primarily to accelerate trade, plant relocation, and sectoral job "gain" and job "loss" trends that were already ongoing. This report documents five and one-half years worth of trends, and includes six tables. They track overall U.S. commodities exports, imports and trade balance; imports and exports by industry; estimates of jobs supporting those exports, by state; and industry import and plant relocation effects translated into potential job losses, both by industry and by state. A separate graph shows re-employment experience of displaced workers one to three years later. This report is updated periodically.

NAFTA: Estimates of Job Effects and Industry Trade Trends After 5½ Years

Summary

Five and one-half years after the North American Free Trade Agreement (NAFTA) between the United States, Mexico, and Canada went into effect in January 1994, there is a continuing debate over whether it has resulted in job “gains” or job “losses.” Before NAFTA, estimates were that the trade agreement could result in a maximum of one million job shifts among sectors over NAFTA’s entire 10-15-year implementation period.¹

In its first five and one-half years, NAFTA has primarily served to accelerate trade, plant relocation, and sectoral job gain and job loss trends that were already ongoing. Before NAFTA, no Federal agency documented specific job losses from imports or plant relocations to Mexico or Canada. Only anecdotal estimates were available. These statistical gaps make NAFTA’s effects difficult to isolate. Because it is virtually impossible to discern job effects *from* NAFTA, this report is really about job effects *since* NAFTA. Moreover, job-effect estimates included in this report were developed by different agencies using divergent methods, are arguably incomplete, and may not capture all of the sectoral job gains or job losses; but they attempt to present arguments and data so far.

During a little more than NAFTA’s first five and one-half years (from January 1, 1994 - September 28, 1999), nearly 260,000 primary jobs were certified by the Department of Labor (DOL) in 2,346 plants as potentially threatened by increased imports from or plant relocations to Mexico or Canada. Two industries, apparel and electronics, accounted for about 40% of the NAFTA certifications. According to recent reports by the Department of Labor, perhaps 20 - 30% of those workers certified may actually have collected benefits. Others certified may never actually have lost their jobs, or may have found new jobs before beginning to collect benefits. Additional job losses may have occurred outside of these figures.

These potential job losses are balanced by an estimated nearly 710,000 net job gains in the economy from increased exports to Mexico and Canada since NAFTA took effect. This represents nearly 5% of the 15 million jobs created in the U.S. economy over the same period of time. It may also account for about 98% of the 697,000 jobs gained in manufacturing over the same period of time, since slightly more than half of all jobs supporting exports to Mexico and Canada are in the manufacturing sector.

¹For a summary of pre-NAFTA job studies, see U.S. Library of Congress, Congressional Research Service. NAFTA: U.S. Employment and Wage Effects, by Mary Jane Bolle. [Washington] April 27, 1995, p. 4. (CRS Report 93-447.)

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Special thanks to Cathi Jones for assistance in obtaining data for this report.

NAFTA: Estimates of Job Effects and Industry Trade Trends After 5½ Years

Five and one-half years after the North American Free Trade Agreement (NAFTA) between the United States, Mexico, and Canada went into effect January 1, 1994, there is a continuing debate over whether the trade agreement has resulted in net job “gains” or job “losses.” Before NAFTA, estimates were that it could result in a maximum of one million job shifts among sectors over NAFTA’s entire 10-15-year implementation period.

Economists believe that overall and in the long run, trade in general and NAFTA in particular results in neither net job gains nor net job losses — only in reallocations from less efficient to more efficient industries. Job-effect estimates included in this report were developed by different methods, are arguably incomplete, and may not capture all of the sectoral job gains or job losses. Nevertheless, the purpose of this report is to present, sort out, and explain the arguments and data so far.

Overall Job Effects Under NAFTA

When discussing job effects under NAFTA, most economists emphasize that both production shifts caused by lowering of trade barriers and resulting job dislocations are an intermediate step to greater productivity, greater real income, and a higher standard of living. The effects of NAFTA will take many years to become fully manifest.

Under NAFTA, trade barriers are being reduced gradually over 10-15 years, and resulting dynamic gains from trade and accompanying job effects will continue for all three countries, particularly as the Mexican economy evolves. In this report estimates of job gains cover NAFTA’s first five years; estimates of potential job losses cover a bit more than NAFTA’s first five and one-half years.

In its first five and one-half years, NAFTA has primarily served to accelerate trade, plant relocation, and sectoral job gain and job loss trends that were already ongoing. Before NAFTA was approved, however, no Federal agency systematically documented specific job losses from imports or plant relocations to Mexico or Canada. Only anecdotal estimates were available: Between 1986 and 1993, for example, an estimated 25,000 jobs in electronics, 20,000 jobs in transportation, and 17,000 jobs in apparel production moved to Mexico.² Meanwhile, expanding exports to Mexico supported increasing numbers of U.S. jobs — an estimated

²U.S. Library of Congress, Congressional Research Service. NAFTA: U.S. Employment and Wage Effects, by Mary Jane Bolle, op. cit., p. 10.

538,000 jobs in 1990.³ Now, while estimates are available, hard data still are difficult to come by. In addition, because it is virtually impossible to discern job effects *from* NAFTA, this report is really about job effects *since* NAFTA.

One more point about overall job effects under NAFTA: Economists argue that since total U.S. employment (as well as U.S. manufacturing employment) increased by about 15 million jobs in the 1994-1998 period, any job losses under NAFTA have, in the aggregate, been more than made up for by job gains in other industries.

Job effects since NAFTA depend on trade effects. Table 1 shows changes in trade with Mexico and Canada during NAFTA's first five years. (Trade data at the industry level are included in the Appendix Table 6.) Since NAFTA went into effect, exports to and imports from Canada have each increased by roughly 55%. This suggests little net job effects from trade with Canada. Imports from Mexico, however, have increased about one and one-half times as much as exports to Mexico. This suggests some sectoral job "losses" from production shifts to Mexico. However, since about two-thirds of the increase in imports from Mexico is covered by an increase in exports to that country, net job effects over NAFTA's first five and one-half years are estimated to be relatively small.

Table 1. U.S. Commodities Exports, Imports, and Trade Balance with Mexico and Canada: 1993 - 1998
(in millions)

	1993	1994	1995	1996	1997	1998
MEXICO						
U.S. Exports	\$41,635	\$50,840	\$46,311	\$56,761	\$71,378	79,010
U.S. Imports	40,745	50,356	62,756	74,111	87,167	96,078
Trade Balance	891	484	(16,445)	(17,350)	(15,789)	(17,068)
CANADA						
U.S. Exports	\$100,190	\$114,255	\$126,024	\$132,584	\$150,124	154,152
U.S. Imports	113,617	131,956	148,304	159,746	171,440	178,048
Trade Balance	(13,427)	(17,701)	(22,280)	(27,162)	(21,315)	(23,896)

Source: U.S. International Trade Commission Dataweb. <http://dataweb.usitc.gov>. Numbers in parentheses represent negative balances.

³U.S. Department of Commerce, Economics and Statistics Administration. U.S. Jobs Supported by Goods and Services Exports to Mexico, May, 1992. OIMA Research Series 2-92, p. 10, and U.S. Jobs Supported by Goods and Services Exports, 1983-94, OIMA Research Series 1-96, p. 20.

Estimates of Job “Gains” Since NAFTA

How great have the sectoral job gains been during NAFTA’s first five years? The Department of Commerce (DOC), under contract with the University of Maryland, used an input-output model (incorporating output-per-worker ratios for each sub-industry) to estimate jobs added to the economy when output for any given sector increases. This model has been used to calculate the average number of jobs supported by each billion dollars worth of exports to Mexico and Canada for each year since NAFTA went into effect. The resulting figures can be used to produce two separate estimates on job gains in the U.S. economy from increased trade with Mexico and Canada since NAFTA. The two estimates are “gross” job gains and “net” job gains (which are mitigated by productivity increases). Both sets of figures are presented in Table 2, columns 6 and 7, on the following page.

Table 2, in addition to showing estimates of job gains from new trade with Mexico and Canada since NAFTA went into effect, also includes other data from which these job gains were derived.

In table 2, columns 2 and 3 list the value of *total exports to Mexico and Canada combined*, and *new exports* for each year since NAFTA went into effect. Column 4 includes figures from the DOC model — the *number of jobs supporting each billion dollars worth of exports* to NAFTA partners for the various years. This is a number which declines each year because of productivity changes.

Column 5 lists *total jobs supported by merchandise exports to NAFTA partners* for the respective years.

Columns 6, as mentioned above, reflects “gross” jobs — that is, the value of new exports, in billions (column 3), times the number of jobs supporting each billion dollars worth of exports (column 4).

Column 7 reflects “*net*” jobs, which represents added jobs from increased exports for a given year, minus jobs lost over the year from increases in productivity. For any year, this is calculated as the column 5 figure minus the column 5 figure for the previous year. Estimates of the total net number for jobs “created” from “new” exports to Mexico and Canada since NAFTA went into effect (709,988) represent about 5% of the 15 million jobs created in the U.S. economy over the same time.

The overall job gain figures are not sorted by specific industries, because the Department of Commerce does not publish annual figures showing, by industry, the number of jobs supported by each billion dollars worth of exports. However, Table 3 shows the major industries of increased exports to Mexico and Canada since NAFTA went into effect. Table 3 shows that most of the export gain, and therefore most of the presumed job “gains,” since NAFTA went into effect would be expected in three manufacturing industries: transportation equipment (e.g., auto and some parts manufacturing), electronics, and nonelectric machinery (including computers). However, productivity gains in these industries may eliminate any actual net job gains in these industries.

Table 2. Estimates of “Gross” and “Net” Jobs Created Each Year from Increased Exports to Mexico and Canada Since NAFTA

(1) Year	Value of Merchandise Exports to NAFTA partners (Can. + Mex.) (in \$billions)		(4) Number of Jobs Supporting a Billion Dollars Worth of Exports to NAFTA Partners	(5) Total Jobs Supported by Merchandise Exports to NAFTA Partners	Total Number of Jobs Supporting New Exports to NAFTA Partners	
	(2) Total Exports	(3) New Exports			(6) “Gross” Jobs	(7) “Net” Jobs
1993	142	—	15,123	2,144,834	—	—
1994	165	23	14,361	2,370,929	330,303	226,109
1995	172	7	13,774	2,373,750	96,418	2,821
1996	189	17	13,258	2,510,332	225,386	136,582
1997	221	32	12,755	2,825,258	410,175	314,934
1998	233	12	12,245	2,855,072	142,771	29,805
1999	245	12	11,755	2,877,060	136,240	21,992
TOTAL					1,341,293	732,230

Source of data: Department of Commerce, Economics and Statistics Administration.

Table 3. Major Industries of Increased Exports to Mexico and Canada, 1993-1998

SIC	Industry	Growth in Industry Export Value 1993-98		% of Total NAFTA Commodity Export Gain
		in \$billions	% change	
37	*Transportation Equip	17	56	19
36	*Electronics	17	81	1819
35	*Nonelectric machinery	16	74	1818
28	Chemicals	8	72	99
33	Primary metals	4	76	54
30	Rubber	4	91	44
38	*Scientific instruments	3	48	33
26	*Paper products	3	69	23
23	*Apparel	2	132	22
20	Food	2	45	22
SUBTOTAL		76	57	84
	Other Manufacturing	11	46	12
TOTAL MANUFACTURING		87	65	96
	Nonmanufacturing	4	44	4
TOTAL		91	64	100

Source: DOC Office of Trade and Economic Analysis.

* indicates industries that are also prominent in Table 4, which lists major industries of NAFTA-TAA certification in anticipation of possible job loss.

Difficulty of Making Estimates of Job “Losses” Since NAFTA

Some analysts have tried to count sectoral job *losses* under NAFTA by applying the DOC “average” (Table 2, column 4) numbers of jobs supporting each \$1 billion of *exports*, to *imports* or to *net imports* (i.e., trade deficits) for the respective years. However, this methodology is not correct.

Trade deficits cannot be used to measure *net* job losses because there are no *net* job losses as long as output and employment continue to rise. New imports are just *added to* domestic output, and not *substituted for* it. Trade deficits therefore, do not reflect aggregate jobs lost, but rather, at most, *some job gains foregone* (which, have no identifiable victims) in sectors affected by trade.⁴ Nor can trade deficits be used to measure *specific* job losses in various industries. This is because at even the most detailed industry levels, job losses in one operation may be balanced by job gains from increased exports or domestic demand in another.

Thus, many specific job losses are hidden in sub-industries. This is not to say the job losses do not exist. They are very real, and perhaps more accurately counted directly and tallied up by industry. However, attempting to do this unveils other problems. Although the Department of Labor regularly publishes the number of job certifications (potential job losses from trade with Mexico and Canada since NAFTA), it does not publish the *actual* number of job losses in various industries, which may vary as a proportion of certifications, from industry to industry.

⁴An example helps illustrate: If there is a trade *balance*, then *exports equal imports*. A subsequent trade *deficit* means either that net imports have increased or net exports have decreased. *If net imports have increased*, then *extra* imported goods consumed in the United States are being made abroad in jobs held by workers in other countries. Some would argue that these specific jobs held by foreigners are actually U.S. *jobs foregone* (gone to other countries before they were able to become U.S. jobs) — and thus have no *identifiable* U.S. victims.

However, *not all these imported goods represent jobs that could be held in the United States* for two reasons: First, because countries tend to import goods that are relatively costly to produce domestically (and to export goods which they can produce most efficiently) imported goods, in all likelihood, could not be produced as cheaply at home. Therefore, if the imports were not available, U.S. consumers would presumably buy a lower additional quantity of domestically produced goods, which would employ a *smaller number of additional workers* in the United States than are employed abroad in manufacturing the actual level of extra goods produced for import into the United States. Second, if the United States is at “full employment” when there is a trade deficit (as is currently the case) then there would be a limited supply of available workers to shift into domestic production of these goods. However, *some unknown number* of workers would likely be willing and able to shift into jobs producing these import substitutes if wages were greater than in their current employment, and if their education and training qualified them for the jobs. Their shifting would leave other less desirable jobs unfilled.

How Great Have Certified Job Losses Been Under NAFTA?

The Department of Labor (DOL) certifies potential job losses from trade with Mexico and Canada under the NAFTA-Transitional Adjustment Assistance (TAA) Program. The certification identifies those eligible for training or income replacement benefits because imports are expected to “*contribute importantly*” to the potential for job loss, or the plant is relocating to Mexico or Canada. Hence, NAFTA certifications cover an unknown number of actual job losses which are a subset of total job losses from NAFTA. The NAFTA certifications include only those job losses for which the worker or an employer applied for certification and a direct linkage to trade with or a shift in production to Mexico or Canada can be verified.

However, NAFTA-TAA certification figures may overestimate job losses among certified workers. Not all workers certified actually lose their jobs. Rather, certification numbers represent the total number of workers at the plant which has applied for certification. Data from the Department of Labor suggest that as few as 20-30% of the certified workers actually collect NAFTA-TAA benefits. (Therefore, the others certified may either actually not have lost their jobs, may have found another job in lieu of needing benefits, or for other reasons may not have collected benefits.)

The DOL has certified roughly 259,618 job losers from 2,179 plants under the NAFTA-TAA Program in a little more than five and one-half years (January 1, 1994 - September 28, 1999.) These potential job losers are distributed by industry in Table 4 and by state in Table 5.

A common question relates to the identity of NAFTA-related job losers outside the NAFTA-TAA subset. Other workers whose job losses may be related to NAFTA include the following major groups: (1) primary job losers who for some reason either: (a) did not apply for NAFTA-TAA benefits; or (b) applied and were rejected because they did not meet the criteria for certification (e.g., imports from Mexico or Canada contributed “somewhat” rather than “importantly” to their job loss); (2) secondary job losers (who typically equal about twice the number of primary job losers) in supplier or distributor industries who did not apply or were not approved for NAFTA-TAA benefits;⁵ and (3) other job losers whose job loss is less directly related to NAFTA and who did not apply or were not eligible for NAFTA benefits.

⁵U.S. Department of Commerce, Economics and Statistics Administration. U.S. Jobs Supported by Goods and Services Exports, 1983-92, p. 13 suggests that approximately two additional jobs support each manufacturing job by producing intermediate inputs, capital goods, and transportation and other services to the goods to market.

Industries of Potential Job “Losses” and Estimated Job “Gains” Under NAFTA

Table 4 shows NAFTA-certified “cases”⁶ and job losses by industry (columns 1, 2, and 3) in a broader context. For each industry, Table 4 also shows overall industry employment changes (columns 6 and 7), and trade levels and growth rates (columns 8 and 9) over NAFTA’s first two years, as well as longer-term output (column 4) and employment (column 5) projections.

During NAFTA’s first five and one-half years, NAFTA-certified job losses (Table 4, column 3) have occurred in 19 out of a total of 20 manufacturing industries (column 1) with approximately 41% of the total job loss occurring in two industries: apparel and electronics. Many of these transitional losses have fallen more harshly on workers in *declining*⁷ industries and declining sectors of growing industries. Declining industries are indicated by a “D” in column 4 — e.g., leather manufacturing. In these industries, current and projected output (column 4) and employment during NAFTA’s first five and one-half years are declining absolutely (indicated by a negative number in column 6). Declining portions of expanding industries are not identified. However, the fact that many of the same industries appear in both Table 3, which identifies major industries of increased exports, and high up on Table 4, which lists industries of potential job “loss” from new trade with Mexico and Canada, in descending order, suggests that certain portions of the same industries are declining, and relocating to Mexico or Canada, while other parts are increasing their exports. Industries included in both Tables 3 and 4 are listed in bold typeface and marked with an asterisk (*).

Longer-term output and employment projections have been included in Table 4 (columns 4 and 5) because some observers argue that if NAFTA were repealed, both output and jobs could be preserved in the United States. Since merchandise exports to Mexico and Canada combined represent only about 2.7% of U.S. GDP, repeal of NAFTA would likely have very little effect on these longer-term trends in most industries.⁸ These trends show clearly that even though output is expected to increase in most industries, employment is not expected to increase appreciably.

⁶“Case” refers to a group of workers applying for NAFTA certification. It may represent a plant or a production operation.

⁷Declining industries are typically those at the end of their *product life cycle*, a concept authored by economist Raymond Vernon. He hypothesized that, as each product moves through its natural life cycle from a fledgling product requiring constant research, development, and refining to a mature product with standardized technology, it likely experiences changes in the geographical location of its production. After production technologies are perfected, the product can be manufactured wherever production and distribution costs are lowest. This frees scarce labor resources for work on other, newly emerging products.

⁸U.S. Library of Congress. Congressional Research Service. NAFTA: Economic Effects on the United States, by Arlene Wilson. [Washington] April 12, 1996. CRS Report No. 96-336E.

**Table 4. Industry Effects Since NAFTA:
January 1, 1994-September 28, 1999**
Cases and Workers Certified and Trade Changes against a Backdrop of
Overall Domestic Output and Employment Trends

Industry (SIC) (1)	Cases Certified (2)	1/1/94- 9/28/99 Workers Certified ^a (3)	Domestic Trends				Trade Trends ^d	
			Output Change (4)	Employment Change (5)	% Employ- ment Change (6) ^c	Certified workers as a % of total job loss in (6) (7)	Trade with Mexico and Canada combined: 1998 level in \$billions; and (%) change 1993-98	
							Exports (8)	Imports (9)
MANUFACTURING	1,698	244,266	S	D	43		220 (66%)	274 (78%)
*Apparel (SIC 23)	645	73,568	S	R/D	-23	33	4 (132)%	9 (206%)
*Electronics (36)	280	33,684	R/E	D	12		37 (81%)	35 (117%)
*Trans. equip.(37)	92	17,092	S	D	7		46 (56%)	74 (70%)
Fab. metals (34)	114	15,372	S	D	12		11 (56%)	7 (126%)
Textiles (22)	105	14,150	N	D	-11	18	4 (100%)	2 (217%)
*Nonelec. mach. (35)	99	11,747	R/E	D	14		37 (74%)	21 (132%)
Lumber (24)	146	9,826	S	D	15		2 (21%)	11 (55%)
*Scientif. inst. (38)	85	9,433	R/E	D	-3	34	9 (48%)	6 (106%)
*Paper products (26)	59	8,982	R/E	N	-2	53	6 (69%)	12 (37%)
Rubber/Plastics (30)	64	7,722	R/E	S	11		9 (91%)	5 (103%)
Leather (31)	68	7,521	D	R/D	-29	22	1 (62%)	1 (65%)
Misc. (39)	48	6,909	S	N	4		3 (55%)	2 (114%)
Primary metals (33)	43	6,321	N	R/D	4		10 (76%)	15 (59%)
Food (20)	40	6,043	S	N	4		8 (45%)	8 (84%)
Stone/clay/glass (32)	43	5,995	N	D	9		3 (43%)	3 (91%)
Furniture (25)	26	4,130	S	N	7		3 (41%)	6 (149%)
Chemicals (28)	40	3,493	S	N	-3	9	19 (72%)	10 (67%)
Prnt./publishing (27)	21	1,995	R/E	S	3		3 (25%)	1 (108%)
Petroleum prods. (29)	3	285	R/E	N	-7	3	3 (65%)	3 (0%)
Tobacco (21)	0	0	D	R/D	-7		* (21%)	* (-92%)
NON-MANUFACTURING				S				
Commodities	100	7,549	—	—	—	—	13 (44%)	43 (48%)
Services	49	6,234	—	—	—	—	—	—
Unallocated	142	1,569						
TOTAL	1,989	259,618	—	S	16		220 (66%)	274 (78%)

SIC: Office of Management and Budget Standard Industrial Classification codes. Manufacturing industries are represented by SIC Codes 20-39.

^a "Cases certified" includes a group of workers who may represent a plant or a production operation. Source for plant closings and job losses: U.S. Department of Labor, Office of Trade Adjustment Assistance.

^b Source: Franklin, James. Industry Output and Employment Projections to 2005. *Monthly Labor Review*, November 1995, p. 45-59. For output change for the period 1994-2005: D= declining (4-19% decline); N= no change (-2%+2%); S= slow-growing (3-25% growth); R/E= rapidly expanding (26-50% growth). For employment change: R/D= rapidly declining (21-38% decline); D= declining (2-20% decline); N= neutral growth (-3%+3%) S= slow-growing (4-8% growth).

^c Source: U.S. Department of Labor, Employment and Earnings, all workers

^d Detailed trade data are included in appendix Table 6.

*less than 0.5 billion.

Therefore, for most industries these projections include only a very marginal job effect from trade with Mexico and Canada, and an even smaller effect specifically from NAFTA.

To what extent is NAFTA exacerbating absolute employment declines in certain industries? During NAFTA's first five and one-half years industry employment declined absolutely (column 6) in seven out of 19 manufacturing industries that show potential NAFTA job loss. Within these seven industries, potential NAFTA job loss accounted for 3% to 53% of total job loss (column 7). In other industries where employment did not occur overall, much of the job loss was presumably attributable to productivity gains or non-NAFTA-related declines in output. Overall, between 1994 and June of 1999, an increase in manufacturing jobs in the U.S. economy has more than made up for NAFTA job losses. Between January 1994 and June, 1999 manufacturing employment grew by 478,000 jobs or about 2.6%.

To what extent will NAFTA-related job gains occur in the manufacturing sector in the coming decade? As mentioned briefly earlier in this report, productivity gains in manufacturing are expected to greatly mitigate job opportunities in this sector. Little future job growth is expected in any of the four industries that currently account for 63% of manufacturing exports to Mexico and Canada (Table 4, column 8: transportation equipment, electronics, nonelectrical machinery, and chemicals), even though two of these industries (electronics and non-electrical machinery) anticipate rapidly expanding output, and all four industries anticipate expanded trade with NAFTA partners. Only two industries (rubber/plastics and printing/publishing — see column 5) anticipate employment growth above 3% for the 11-year period 1994-2005, even though 15 out of 20 industries (column 4) anticipate output growth. All this means that NAFTA-related job gains *in the manufacturing sector* could be very small, and most job gains related to NAFTA will likely occur in other industries.

Certified NAFTA Cases and Workers by State

Table 5 shows the number of cases and workers certified, by state. Three groups of states have chalked up more than 80% of the NAFTA-related job loss: (1) some of the more traditional industrial states (i.e., New York, Pennsylvania, Michigan, Wisconsin, New Jersey, Illinois, Ohio, and Indiana); (2) some of the southern states which represent some labor-intensive industries as well as some border retail establishments (i.e. North Carolina, Texas, Georgia, Arkansas, Florida, and Tennessee), and (3) some of the high-tech states (i.e., Washington and California).

Table 5. Potential Job “Loss” by State: Number of Cases and Workers Certified by the NAFTA-TAA Program, January 1, 1994-September 28, 1999

Total Jan. 1994-Sept. 28, 1999 NAFTA-TAA Certified			Total Jan. 1994-Sept. 28, 1999 NAFTA-TAA Certified		
STATE	Cases	Workers	STATE	Cases	Workers
North Carolina	171	27,725	Arizona	30	1,354
Texas	252	23,386	Minnesota	20	1,343
Pennsylvania	193	18,663	New Mexico	12	1,260
New York	126	17,487	Maine	18	1,234
California	124	14,825	Kansas	13	1,184
Georgia	110	12,457	West Virginia	18	842
Tennessee	109	12,191	Connecticut	11	780
Indiana	59	9,406	Mississippi	4	753
Arkansas	48	8,993	Puerto Rico	2	631
Michigan	74	8,334	Utah	13	483
Wisconsin	52	7,776	Montana	24	399
Washington	85	7,351	Alaska	5	390
New Jersey	69	7,064	Wyoming	19	371
Alabama	40	6,627	South Dakota	5	319
South Carolina	46	6,551	Iowa	9	300
Virginia	64	6,513	Vermont	4	280
Ohio	53	6,074	North Dakota	4	220
Missouri	67	5,984	Maryland	3	211
Florida	72	5,756	Oklahoma	4	157
Illinois	50	5,718	Nebraska	5	83
Oregon	90	4,907	Nevada	1	1
Louisiana	18	4,688	New Hampshire	0	0
Idaho	38	3,073	Delaware	0	0
Kentucky	30	2,904	Rhode Island	0	0
Massachusetts	31	2,562	Hawaii	0	0
Colorado	28	2,359	Dist. of Col.	0	0
TOTAL			2,346	259,618	

Source: U.S. Department of Labor, Office of Trade Adjustment Assistance. Database sorted by CRS.

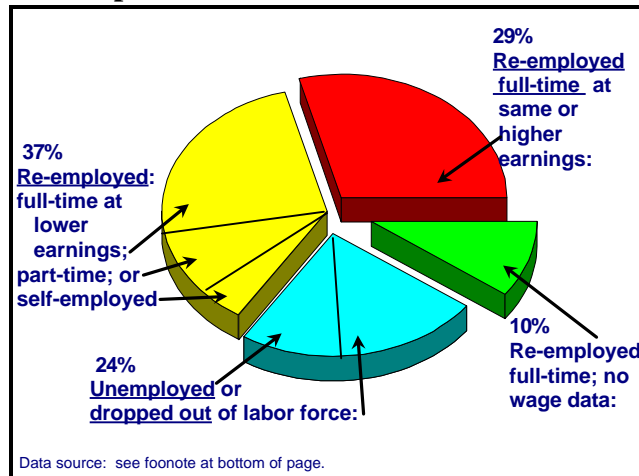
Note: Totals in Table 5 do not agree with totals in Table 4 because certain entries which lack SIC code identifications were not picked up in the Table 4 sort.

Effects of NAFTA on Jobs in Perspective

While NAFTA has resulted in job loss in certain import-sensitive industries, it may have also resulted in job gains in some export-oriented industries. While parts of many industries are growing as a result of NAFTA, some have lost jobs primarily because of trade with Mexico and Canada. All the estimated 259,618 workers certified under NAFTA-TAA are eligible for retraining benefits through local state employment agencies for up to 18 months, if they actually lose their jobs. Data are not available to show specific subsequent job history of job losers under NAFTA. However, a DOL study showing how 3.6 million full-time wage and salary workers displaced from their jobs between January 1995 and December 1997 had fared one to three years later in February 1998 offers a possible scenario (see Figure 1).⁹

Of all workers displaced from wage and salary jobs, after one to three years, 29% were confirmed to have found new full-time wage and salary jobs earning the same or higher salary. Another 37% were re-employed at lower earnings, part-time, or were self-employed. Another 24% were unemployed or dropped out of the labor force. The remaining 10% were re-employed full-time but no wage data were available for their previous employment, so it can not be determined whether they gained or lost wage ground.

Figure 1. Re-employment Experience of Displaced Workers 1 to 3 Years Later



What is happening to U.S. jobs as a result of NAFTA is part of a larger picture of job changes in the American landscape: Although manufacturing's real (inflation-adjusted) output as a percent of real GDP has remained relatively stable, manufacturing's employment level and employment share has been shrinking: Between 1972 and 1998 manufacturing lost 2% of its jobs, while its share of total U.S. jobs declined from 26% to 15%. Productivity growth and downsizing have helped some manufacturing industries become more competitive in the international marketplace. Between 1992 and 1997, manufacturing employment has actually grown by 3%. In the future, however, as manufacturing employment continues to shrink from additional productivity gains, most employment gains elsewhere in the economy that balance out small NAFTA-related job losses will tend to occur in non-manufacturing sectors.

⁹Source of data: BLS Finds Risk of Displacement Higher Even as Job Losses Ease in 1995-97 Period. Bureau of National Affairs' Daily Labor Report, August 20, 1998, p. D-5 — D-13.

In conclusion, the estimates reported here provide a medium-term perspective on possible trade-related effects *since* NAFTA. An analysis of the complete employment effects *from* NAFTA must include many more years of data and more comprehensive analysis. An accurate assessment of employment effects under NAFTA would have to separate out from raw data, such non-NAFTA influences as business cycles, productivity growth, pre-NAFTA-trends, and post-NAFTA fluctuations in currencies.

Table 6. Appendix. Data on Trade with Mexico and Canada, 1993-1997
(in \$millions)

TRADE WITH MEXICO	EXPORTS to MEXICO (f.a.s. value)					IMPORTS from MEXICO (c.i.f. value)					TRADE BALANCE with MEXICO (exports minus imports)				
	1993	1996	1997	1998	% chng 93-98	1993	1996	1997	1998	% chng 93-98	1993	1996	1997	1998	% chng 93-98
ALL COMMODITIES	41,635	56,761	71,378	79,010	90	40,745	74,111	87,167	96,078	136	891	(17,350)	(15,789)	(17,068)	(2,018)
MANUFACTURING	39,096	52,312	67,306	74,524	91	31,848	61,035	71,573	82,754	160	7,247	(8,723)	(4,267)	(8,230)	(214)
20—Food products	1,996	2,000	2,385	2,830	42	941	1,499	1,733	2,016	114	1,055	500	652	814	(23)
21—Tobacco	22	38	23	11	(50)	4	11	25	11	175	18	27	(3)	0	(100)
22—Textiles	643	1,035	1,293	1,697	164	123	495	710	735	498	520	540	583	962	85
23—Apparel	1,167	1,986	2,510	2,966	154	2,468	4,708	6,325	7,746	214	(1,300)	(2,722)	(3,814)	(4,780)	267
24—Lumber	484	256	300	378	(22)	326	411	457	422	29	158	(155)	(157)	(46)	(129)
25—Furniture	696	527	650	789	13	915	1,552	1,919	2,290	150	(219)	(1,025)	(1,269)	(1,501)	585
26—Paper	1,376	1,821	2,063	2,298	67	112	247	283	323	188	1,264	1,574	1,780	1,975	56
27—Printing	263	341	329	380	44	75	190	223	258	244	187	151	106	122	(35)
28—Chemicals	3,036	4,574	5,631	6,069	100	810	1,454	1,628	1,598	97	2,225	3,120	4,003	4,471	101
29—Petroleum	813	1,162	1,624	1,504	85	627	431	345	327	(48)	186	731	1,278	1,177	533
3X—Exprts, unident.	1,538	2,108	2,675	3,241	111	—	—	—	—	—	1,538	2,108	2,675	3,241	111
30—Rubbr & plast.	1,632	2,625	3,314	3,865	137	368	711	899	1,067	190	1,264	1,914	2,414	2,798	121
31—Leather	197	243	319	360	83	351	529	617	596	70	(153)	(286)	(298)	236	53
32—Stone, clay, glass	364	478	561	635	74	618	1,016	1,141	1,329	115	(254)	(537)	(580)	694	173
33—Primary metals	1,892	2,796	3,239	3,809	101	1,289	2,789	3,140	3,503	172	602	7	99	306	(49)
34—Fabricatd metls	1,977	2,874	2,879	3,166	60	951	1,699	2,199	2,560	169	1,025	1,175	680	606	(41)
35—Nonelec. mach.	5,210	6,859	9,547	10,270	97	2,031	5,389	7,185	8,598	323	3,179	1,471	2,362	1,672	(47)
36—Elec machinery	8,191	12,522	16,292	17,458	113	11,222	18,542	21,550	25,434	127	(3,031)	(6,019)	(5,259)	(7,976)	163
37—Transprt. equip.	5,112	5,693	8,359	9,298	82	6,446	15,613	16,972	18,816	192	(1,334)	(9,920)	(8,613)	(9,518)	613
38—Scientific instr	1,941	1,797	2,462	2,679	38	1,507	2,584	2,926	3,694	145	434	(787)	(464)	(1,015)	(334)
39—Misc.	547	577	854	833	52	663	1,167	1,295	1,431	116	(117)	(589)	(441)	(598)	416
AGRICULTURE	1,716	3,457	2,857	3,412	99	2,376	3,134	3,304	3,611	52	(660)	322	(447)	(199)	(70)
MINING	290	458	475	424	46	4,635	6,862	8,705	5,496	19	(4,345)	(6,404)	(8,231)	(5,072)	17
OTHER	534	534	741	650	22	1,886	3,080	3,585	4,217	124	(1,351)	(2,545)	(2,844)	(3,567)	164

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TRADE WITH CANADA	EXPORTS TO MEXICO (f.a.s. value)					IMPORTS FROM CANADA (c.i.f. value)					TRADE BALANCE WITH CANADA (exports minus imports)				
	1993	1996	1997	1998	% chng 93-98	1993	1996	1997	1998	% chng 93-98	1993	1996	1997	1998	% chng 93-98
ALL COMMODITIES	100,190	132,584	150,124	154,152	54	113,617	159,746	171,440	178,048	57	(13,427)	(27,162)	(21,315)	(23,896)	78)
MANUFACTURING	93,460	124,110	140,672	145,271	55	93,437	131,266	141,030	148,079	58	23	(7,156)	(358)	(2,808)	(12,309)
20—Food products	3,462	4,298	4,819	5,058	46	3,295	4,767	5,293	5,770	75	167	(469)	(475)	(712)	(526)
21—Tobacco	11	21	24	29	164	518	27	28	33	(94)	(507)	(6)	(4)	(4)	(99)
22—Textiles	1,254	1,725	1,999	2,089	67	497	931	1,105	1,229	147	757	794	893	860	14
23—Apparel	676	1,027	1,221	1,304	93	622	1,199	1,448	1,719	176	54	(172)	(227)	(415)	(869)
24—Lumber	1,165	1,330	1,653	1,619	39	6,638	9,204	10,118	10,369	56	(5,473)	(7,874)	(8,465)	(8,750)	(60)
25—Furniture	1,266	1,519	1,794	1,980	56	1,513	2,748	3,255	3,758	148	(247)	(1,229)	(1,461)	(1,778)	(620)
26—Paper	1,936	2,894	3,140	3,301	71	8,307	11,165	10,957	11,243	35	(6,371)	(8,270)	(7,817)	(7,942)	25
27—Printing	1,789	1,048	2,207	2,186	22	530	774	881	998	88	1,259	1,273	1,326	1,188	(6)
28—Chemicals	7,977	11,052	12,397	12,847	61	5,443	8,239	9,080	8,825	62	2,534	2,813	3,317	4,022	59
29—Petroleum	734	995	1,111	1,052	43	1,905	2,940	2,916	2,216	16	(1,170)	(1,945)	(1,805)	(1,164)	(1)
3X—Exprts, unident.	1,961	2,504	2,062	1,736	(11)	—	—	—	—	—	1,961	2,504	2,062	1,736	(11)
30—Rubbr & plast.	2,873	3,805	4,344	4,762	66	2,325	3,490	3,968	4,408	90	548	314	376	354	(35)
31—Leather	217	270	311	309	42	101	155	169	149	48	115	115	141	160	38
32—Stone, clay, glass	1,426	1,702	1,837	1,928	35	949	1,482	1,603	1,662	75	477	219	235	266	(44)
33—Primary metals	3,833	5,132	6,471	6,294	64	8,053	11,057	11,675	11,394	41	(4,220)	(5,925)	(5,204)	(5,100)	21
34—Fabricatd metls	4,911	4,965	5,538	7,585	54	2,044	3,443	3,731	4,216	106	2,867	1,522	1,807	3,369	18
35—Nonelec. mach.	16,038	22,360	26,263	26,619	66	6,881	10,357	11,085	12,041	75	9,157	12,003	15,178	14,578	59
36—Elec. machinery	12,369	17,446	18,993	19,738	60	4,988	8,167	8,872	9,729	95	7,381	9,279	10,121	10,009	36
37—Transprt. equip.	24,358	32,416	36,978	36,802	51	37,111	48,492	51,995	55,352	1,392	(12,752)	(16,076)	(15,017)	(18,550)	(190)
38—Scientific instr.	3,883	4,951	5,664	5,962	54	1,227	1,746	1,900	1,930	57	2,656	3,205	3,765	4,032	52
39—Misc.	1,321	1,653	1,844	2,070	57	491	884	949	1,038	111	830	769	895	1,032	24
AGRICULTURE	2,910	3,204	3,409	3,428	18	2,998	3,906	4,266	4,257	42	(87)	(701)	(857)	(829)	842
MINING	1,065	1,531	1,957	1,950	83	10,393	14,561	15,565	12,809	23	(9,328)	(13,029)	(13,608)	(10,859)	16
OTHER	2,755	3,738	4,087	3,503	27	6,790	10,014	10,579	12,903	90	(4,035)	(6,276)	(6,493)	(9,400)	133

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TRADE WITH MEXICO & CANADA COMBINED	EXPORTS TO MEXICO & CANADA COMBINED (f.a.s. value)					IMPORTS FROM MEXICO & CANADA COMBINED (c.i.f. value)					TRADE BALANCE WITH MEXICO & CANADA COMBINED (exports minus imports)				
	1993	1996	1997	1998	% chng 93-98	1993	1996	1997	1998	% chng 93-98	1993	1996	1997	1998	% chng 93-98
ALL COMMODITIES	141,826	189,345	221,503	233,162	64	154,362	233,857	258,607	274,126	78	(12,536)	(44,513)	(37,104)	(40,964)	(227)
MANUFACTURING	132,556	176,422	207,978	219,795	66	125,286	192,301	212,603	230,833	84	7,270	(15,879)	(4,625)	(11,038)	(252)
20—Food products	5,458	6,298	7,203	7,888	45	4,236	6,266	7,026	7,786	84	1,222	32	177	102	(92)
21—Tobacco	33	59	47	40	21	522	38	53	44	(92)	(489)	21	(6)	(4)	(99)
22—Textiles	1,896	2,759	3,291	3,786	100	620	1,426	1,815	1,964	217	1,277	1,334	1,476	1,822	43
23—Apparel	1,843	3,013	3,732	4,270	132	3,089	5,907	7,773	9,465	206	(1,246)	(2,894)	(4,041)	(5,195)	317
24—Lumber	1,648	1,586	1,953	1,995	21	6,964	9,615	10,575	10,791	55	(5,315)	(8,029)	(8,622)	(8,796)	65
25—Furniture	1,962	1,046	2,444	2,769	41	2,429	4,300	5,175	6,048	149	(466)	(2,254)	(2,731)	(3,279)	604
26—Paper	3,312	1,715	5,203	5,599	69	8,419	11,411	11,240	11,566	37	(5,107)	(6,696)	(6,037)	(5,967)	17
27—Printing	2,052	1,389	2,536	2,566	25	605	964	1,104	1,256	108	1,466	1,424	1,432	1,310	(9)
28—Chemicals	11,013	15,625	18,029	18,916	72	6,254	9,692	10,708	10,423	67	4,759	5,933	7,320	8,493	78
29—Petroleum	1,547	1,156	2,735	2,556	65	2,531	3,371	3,262	2,543	0	(984)	(1,215)	(527)	13	(101)
3X—Exprts, unident.	3,500	4,612	4,737	4,977	42	—	—	—	—	—	3,500	4,612	4,737	4,977	42
30—Rubbr & plast.	4,505	6,430	7,658	8,627	91	2,692	4,201	4,867	5,475	103	1,813	2,228	2,790	3,152	74
31—Leather	414	512	630	669	62	452	684	787	745	65	(38)	(171)	(157)	(76)	100
32—Stone, clay, glass	1,790	2,180	2,398	2,563	43	1,567	2,498	2,743	2,991	91	223	(318)	(345)	(428)	(292)
33—Primary metals	5,724	7,928	9,709	10,103	76	9,342	13,846	14,815	14,897	59	(3,618)	(5,919)	(5,106)	(4,794)	33
34—Fabricatd metls	6,887	7,839	8,417	10,751	56	2,996	5,141	5,930	6,776	126	3,892	2,697	2,486	3,975	2
35—Nonelec. mach.	21,248	29,219	35,811	36,889	74	8,912	15,746	18,270	20,639	132	12,336	13,473	17,540	16,250	32
36—Elec. machinery	20,560	29,968	35,285	37,196	81	16,210	26,709	30,423	35,163	117	4,350	3,260	4,862	2,033	(53)
37—Transprt. equip.	29,471	38,110	45,337	46,100	56	43,557	64,106	68,967	74,168	630	(14,086)	(25,996)	(23,630)	(28,068)	(245)
38—Scientific instr	5,825	6,748	8,126	8,641	48	2,735	4,330	4,825	5,624	106	3,090	2,418	3,301	3,017	(2)
39—Misc.	1,868	2,230	2,698	2,903	55	1,154	2,050	2,245	2,469	114	713	180	454	434	(39)
AGRICULTURE	4,626	6,661	6,266	6,840	48	5,374	7,040	7,569	7,868	46	(747)	(379)	(1,304)	(1,028)	37
MINING	1,354	1,989	2,432	2,374	75	15,028	21,423	24,270	18,305	22	(13,673)	(19,434)	(21,838)	(15,931)	17
OTHER	3,289	4,273	4,827	4,153	26	8,675	13,094	14,164	17,102	97	(5,386)	(8,821)	(9,337)	(12,967)	141

Source of data: U.S. International Trade Commission. Website: <http://Dataweb.usitc.gov>.

<http://wikileaks.org/wiki/CRS-98-783>