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International Trade and Job Loss in Ohio

Jon Honeck, Ph.D.
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Author
Research Analyst Jon Honeck has a Ph.D. in Political Science from the University of Wisconsin-Madison, where his dissertation focused on industrial policy in Ohio. At Policy Matters, he has researched economic development, workforce development and trade issues. Before coming to Policy Matters, he researched labor and economic development issues for the Ohio Legislative Service Commission.

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Executive Summary

Total nonagricultural employment in Ohio declined by 244,000 jobs between November 1999 and November 2003. The vast majority of this decline was due to the loss of 191,000 jobs in Ohio's high-paying manufacturing sector. There are many causes for job losses in manufacturing, including relocation of production facilities to other states or foreign countries, rising imports of foreign goods, fluctuations in the business cycle, and changes in productivity levels. This study examines job losses caused by two factors – relocation of production to foreign countries and increased imports of foreign goods. These two causes of job loss are referred to as "trade-related job loss."

The main data sources for this study are the Trade Adjustment Assistance (TAA) program, and the former North American Free Trade Agreement-Trade Adjustment Assistance (NAFTA-TAA). Policy Matters Ohio obtained program data from the U.S. Department of Labor for the 1995 to November 4, 2003, time period. These programs provided assistance to workers who lost their jobs for certain trade-related reasons. The data permit us to pinpoint specific manufacturing facilities in which job losses occurred because the U.S. Department of Labor investigates each case. This program data fails to capture all trade-related job losses, for several reasons. First, many workers are unaware of the program's existence. Second the program has extremely limited coverage of workers who provide a service rather than a good. Third, workers whose facilities were relocated to countries other than Mexico or Canada were not covered until recently. Finally, job losses at upstream or downstream suppliers – such as auto parts jobs lost when car production moves elsewhere – were not included until recently. Because the program data omits so many trade-related job losses in Ohio, this report also discusses other estimates of trade-related job loss developed by the Economic Policy Institute in Washington, D.C. Our major findings are listed below:

• TAA and NAFTA-TAA program data identified 45,734 jobs that were lost in Ohio between 1995 and October, 2003, directly due to international trade. Three-fourths (76.1%) of the job losses occurred in the 1999 to 2003 time period. The year with the highest total was 2002, during which 13,093 jobs were lost.

• Job losses identified under these programs accounted for more than one in six of the manufacturing jobs lost in Ohio over the 1999 to 2003 time period.

• Of the total 45,734 lost jobs identified under the two programs, 14,653 were directly due to NAFTA-related reasons. Nearly two-thirds of the NAFTA-related job losses were caused by U.S. companies relocating production facilities to Mexico.

• According to TAA and NAFTA-TAA data, Cuyahoga County lost over 5,000 jobs due to international trade, the highest number of job losses of any county. Twelve other counties had over 1,000 jobs lost due to international trade. In all, the two programs certified workers in 75 Ohio counties as having lost their jobs for trade-related reasons.

• The industrial sectors with the greatest numbers of trade-related job losses were in electronics and electronic equipment, primary metals, and industrial machinery and equipment (SIC-based). These three sectors together accounted for 24,981 job losses, more than half of the total identified by the trade adjustment programs from 1995 to 2003.

The EPI economic model gives a more complete picture of international trade by taking into account exports as well as imports, and by including demand linkages among various sectors of the economy. EPI's model estimates how much manufacturing production and employment would have existed in a given year if the trade deficit had remained at a given level. According to this model, increases in the U.S. trade deficit from 1994 to 2000 removed more than 135,000 jobs and job opportunities from Ohio's economy, nearly 100,000 of which were from the high-paid manufacturing sector. The transportation sector (mostly automobiles and parts) was the hardest hit sub-sector of the Ohio economy, losing nearly 24,000 jobs and job opportunities. The primary metals, electronic equipment and machinery, and fabricated metal products sectors each had roughly 10,000 jobs and job opportunities lost.

In sum, trade-related job loss is a significant factor in reducing manufacturing employment in Ohio. The consequences of the decline in manufacturing jobs are severe for laid off workers, and for the overall employment situation in Ohio. It is vital that we reexamine our trade policies and acknowledge their true costs to Ohio and the nation.

Introduction

Total nonagricultural employment in Ohio declined by 244,000 jobs between November 1999 and November 2003. The vast majority of this decline was due to the loss of 191,000 jobs in Ohio's high-paying manufacturing sector. The meaning of this decline is vigorously debated in our nation's political and economic discourse. During the recession between March and November of 2001, some job losses could be expected in manufacturing, particularly since the economic boom of the 1990s was fueled by business investment that created excess production capacity. Moreover, the terrorist attacks of September 11, 2001, coupled with the uncertainty leading up to the war in Iraq, may have slowed the economic recovery. Nonetheless, the continuing loss of manufacturing jobs for two years after the end of the recession suggests that other factors are at work besides the domestic business cycle and improved productivity.

This paper will show that job loss due to international trade is an important reason for reduced manufacturing employment in Ohio. Part I of the study discusses the key role that the decline of the manufacturing sector has played in reducing overall levels of employment in Ohio, and the difficulties that laid-off manufacturing workers face when they look for another job in today's economy. Part II of the study presents the findings from an analysis of TAA and NAFTA-TAA program data. These findings include an analysis of the specific industrial sectors and Ohio counties that were most affected by trade-related job loss. Part III discusses estimates of trade-related job loss developed by the Economic Policy Institute (EPI), a non-partisan policy research institute based in Washington, D.C. Part IV contains a more general discussion of the U.S. trade deficit and the increasingly important role played by low-wage countries such as China and Mexico as sources of U.S. imports. The Conclusion provides a brief summary of the study's important findings and some recommendations.

Part 1: Manufacturing Job Loss: Why does it matter?

Ohioans should be alarmed about declining manufacturing employment. Lost manufacturing jobs are the single greatest contributor to Ohio's overall loss of employment in the last several years. Job loss in manufacturing slows the growth of other sectors by curtailing the purchasing power of unemployed workers, who have far less to spend on other goods and services in their communities. Even in good economic times, the loss of manufacturing jobs creates a stressful situation for workers who become unemployed, especially those who are older or are without a college degree. For those who find another job, reemployment typically means taking a lower-paying job with fewer benefits.

A recent study of displaced manufacturing workers supported by the Institute for International Economics in Washington, D.C., looked at the reemployment experiences of laid-off manufacturing workers across the nation in the 1980s and 1990s.[1] The study found that the demographic characteristics of manufacturing workers who had lost their jobs differed significantly from workers who had lost jobs in other economic sectors. The study found "manufacturing workers are slightly older, notably less educated, with

longer job tenures, somewhat more likely to be minority, and far more likely to be production oriented…" These factors contributed to a reemployment rate for manufacturing workers that was four percentage points lower than the reemployment rate for unemployed workers from non-manufacturing sectors. Not surprisingly, workers found jobs more easily in the 1990s, when the economy was closer to full employment, than in the 1980s. An even more striking finding was that workers laid off from manufacturing jobs earned on average 12% less in their new jobs than their previous positions. In comparison, workers laid off from non-manufacturing sectors experienced an average 4% loss of earnings when they were reemployed.

These grim statistics are borne out by reports about Ohio communities that have been affected by plant closings. In an era of employment decline, workers experience difficulty finding new employment and often earn less when they do find a new position. One of the hardest hit areas in Ohio is the village of Ottawa, in Putnam County west of Toledo. In December 2002, LG Philips shut its Ottawa TV picture tube factory and moved production to Mexico. Over 1,200 workers were laid off. A recent article in the *Toledo Blade* reports nearly a third of these workers remained unemployed a year later, including some who found jobs after the Philips layoff but were then laid off by their new employer.[2] Others that found jobs usually had to accept work that was lower paid, and with fewer benefits.[3]

Farther to the northwest, in the town of Bryan (Williams County), workers who made the famous "Etch A Sketch" toy were laid off in December, 2000, when the Ohio Art Company shut its factory and moved all production to China. According to an article in the *New York Times*, "Three years later, only a few Etch A Sketch assembly line workers have found other jobs. Most of those who did were lifetime employees who were rehired in other departments, including a few who unpack crates full of Etch A Sketches from China."[4] A companion article in the *New York Times* reported that Chinese workers who made the Etch A Sketch toy were paid 24 cents an hour, a rate that was even below the legal minimum wage rate of 33 cents an hour. The workers, mostly teenage girls who had moved from the countryside to the city looking for work, were forced to work 84 hours per week and were denied overtime pay.[5]

Unfortunately, even when the economy recovers, it is unlikely that most displaced manufacturing workers will be able to find a new job in the manufacturing sector. For workers with less than a college degree (nearly 80% of Ohio's population), the occupations with the most annual job openings are likely to pay less than the average manufacturing wage rate.[6] In 2001, the average wage in Ohio's manufacturing sector was $17.13 per hour ($17.95 in durable goods, where most trade-related job losses occur, and $15.18 in non-durable goods). Unfortunately, nine of the ten occupations that are projected to have the highest number of annual statewide job openings had average hourly wages below these levels.[7] In fact, the four occupations with the highest number of projected future annual openings (food preparation and serving workers, cashiers, retail salespersons, and waiters) paid average hourly wages below $10 per hour. The only occupation among the ten with an average wage higher than the average wage in

manufacturing was registered nurse (average wage $21.45), an occupation that requires years of education and training.

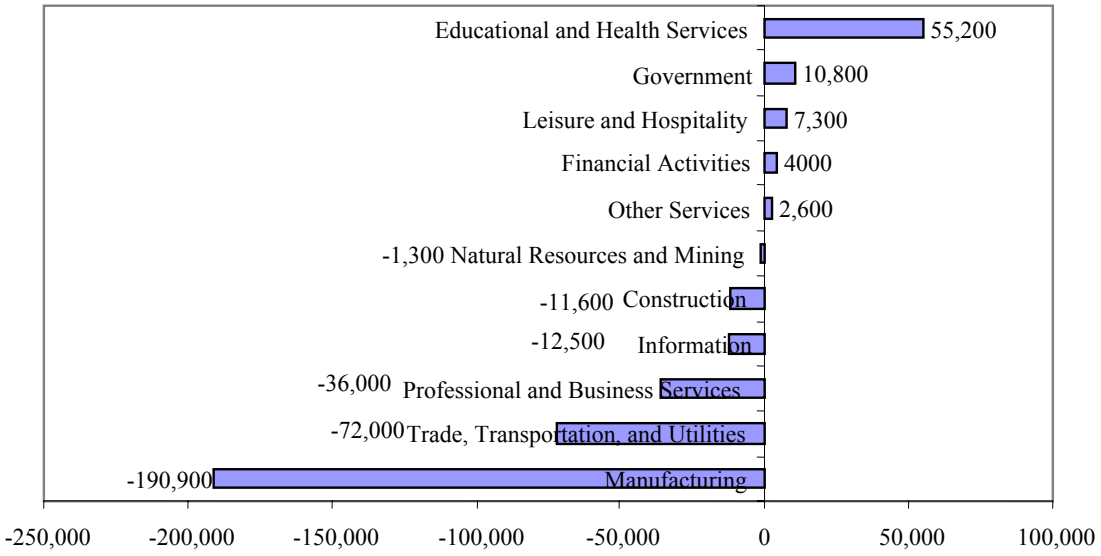
The significance of manufacturing's decline to Ohio's employment situation is shown in Table 1, which displays changes in job gains or losses in economic sectors from November 1999 to November 2003. The six sectors that lost employment lost a combined total of 324,500 positions. The five sectors that gained employment added a combined total of 79,900 positions. As a result, Ohio had 244,600 fewer jobs than it did four years before. The manufacturing sector was by far the largest contributor to the decline in total statewide employment, losing nearly 191,000 jobs, a decline of nearly one-fifth.

Table 1. Change in Total Nonagricultural Employment in Ohio, November 1999 to November 2003 (NAICS basis, in thousands)*

Sector	November 1999	November 2003	Gain/ Loss	Percent Change
Manufacturing	1,032.0	841.1	-190.9	-18.5%
Trade, Transportation, and Utilities	1,136.4	1,064.4	-72.0	-6.3%
Professional and Business Services	646.3	610.1	-36.2	-5.6%
Information	107.0	94.5	-12.5	-11.7%
Construction	254.2	242.6	-11.6	-4.6%
Natural Resources and Mining	13.4	12.1	-1.3	-9.7%
Other Services	220.2	222.8	2.6	1.2%
Financial Activities	305.4	309.4	4.0	1.3%
Leisure and Hospitality	472.9	480.2	7.3	1.5%
Government	796.4	807.2	10.8	1.4%
Educational and Health Services	679.7	734.9	55.2	8.1%
Total -- all sectors	**5,663.9**	**5,419.3**	**-244.6**	**-4.3%**

Figure 1, below displays this information graphically.

Figure 1. Change in Total Non-agricultural employment in Ohio, November 1999 to November 2003 (NAICS basis)



Source: Policy Matters Ohio analysis of CES data from the Ohio Labor Market Review

As shown in Table 2 below, the loss of manufacturing jobs was felt in every major metropolitan region of the state, although some areas fared better than others.[8] On a percentage basis, all of the metropolitan areas experienced double-digit declines.

Table 2. Change in Manufacturing Employment, Major Ohio Metropolitan Areas November 1999 to November 2003 (NAICS basis, in thousands)*

Metro Area	Nov. 1999	Nov. 2003	Change	Percent Change
Akron	62.9	49.0	-13.9	-22.1%
Cincinnati	124.4	106.8	-17.6	-14.1%
Cleveland	209.0	165.3	-43.7	-21.0%
Columbus	89.6	73.9	-15.7	-17.5%
Dayton	91.0	68.5	-22.5	-24.7%
Toledo	59.8	50.3	-9.5	-15.9%
Youngstown	54.4	38.5	-15.9	-29.2%

Source: PMO analysis of CES data.
*Not seasonally adjusted

While the above table shows that all major metropolitan areas experienced substantial manufacturing job losses, Table 3, below, shows that some communities were much better able to generate jobs in other sectors to replace some of those manufacturing losses. Although all of the metropolitan areas listed experienced net job losses, Akron,

Cincinnati, and Columbus were able to mitigate many of the job losses in manufacturing. Cleveland, Dayton, Toledo, and Youngstown were not so fortunate, so their overall employment levels remained well below the level of four years ago.

Table 3. Total non-agricultural employment, Ohio's major metropolitan areas, November, 1999, to November, 2003 (NAICS basis; in thousands)*

Metro Area	Nov. 1999	Nov. 2003	Change (thousands)	Percent Change
Akron	338.1	333.9	-4.2	-1.2%
Cincinnati	888.1	881.7	-6.4	-0.7%
Cleveland	1,185.4	1,113.5	-71.9	-5.9%
Columbus	888.4	882.3	-6.1	-0.7%
Dayton	483.4	460.1	-23.3	-4.8%
Toledo	336.4	309.4	-27.0	-8.0%
Youngstown	252.4	232.9	-19.5	-7.7%

Source: Policy Matters Ohio analysis CES data from the Ohio Labor Market Review
*Not seasonally adjusted

As shown in Table 4, job losses were felt across many of Ohio's industrial sectors. The transportation equipment sector, which includes activities such as vehicle assembly, and automobile and aircraft parts manufacturing, experienced the highest number of job losses. The primary metals sector, which includes integrated steel making, had the greatest reduction on a percentage basis. Foreign trade played a significant role in these reductions. As discussed in Part II of this report, these two sectors had some of the highest numbers of workers certified under the TAA and NAFTA-TAA programs.[9]

Table 4. Jobs Losses in Selected Ohio Industrial Sectors, November, 1999, to November, 2003 (in thousands, NAICS basis)*

Industrial Sector	**Jobs Lost Nov. 1999 – Nov. 2003**	**Percentage reduction**
Transportation Equipment	34.2	18.1%
Fabricated Metal Products	27.2	19.4%
Primary Metals	23.8	29.2%
Machinery Manufacturing	24.9	22.6%
Plastics & Rubber Products	18.9	20.5%
Computer and Electronic Products	10.3	25.9%
Electrical Equipment & Appliance Mfg.	6.8	15.6%
Nonmetallic Mineral Products	6.2	14.3%
Chemical Mfg.	5.7	10.7%
Furniture and Related Products	3.8	14.6%

Source: Policy Matters Ohio analysis of CES data from the Ohio Labor Market Review
*Not seasonally adjusted

The plunge in income that results from such severe and sudden manufacturing job losses affects not only laid-off workers and their families, but also entire communities. Statewide, the total amount of wages paid to employees in Ohio's manufacturing sector in the second quarter of 2003 was $1.21 billion less than three years earlier, a decline of 11.4%.[10] This loss of income represents a loss of consumer purchasing power that affects businesses outside of the manufacturing sector. It also reduces tax revenue and puts the public sector in the position of having to cut services or increase taxes. Difficult economic times also lessen the willingness of citizens to support school district property tax levies at a time when Ohio is trying to improve its educational sector. In short, the repercussions of the decline of manufacturing employment are devastating for Ohio; we cannot afford to ignore them.

PART II. The Trade Adjustment Assistance Program

The Trade Adjustment Assistance (TAA) Program is funded by the federal government through the U.S. Department of Labor's (USDOL) Division of Trade Adjustment Assistance, which distributes grants to state governments to operate the benefits administration elements of the program. Under the TAA program, eligible workers at a specific establishment who have lost their jobs due to international trade are eligible to apply for certain kinds of assistance. In response to a "petition" to establish eligibility, the USDOL conducts a determination process that includes an investigation of business conditions affecting the establishment to determine whether layoffs, or expected layoffs, are due to international trade. The outcome of the USDOL's determination of eligibility is a matter of public record that includes the number of workers at an establishment who have been dislocated or are expected to be dislocated due to international trade.

Using information compiled from USDOL program records, Policy Matters Ohio calculated the number of workers who were certified as eligible for trade adjustment assistance due to petitions with a determination date between January 1, 1995 and November 4, 2003. The program information includes data from the former NAFTA-TAA program, which operated separately from the regular TAA until the two programs were merged in 2002. In addition to information about the number of estimated eligible workers, the data includes information on the city in which an establishment was located and an establishment's Standard Industrial Classification code. Using the geographical information, we are able to pinpoint job losses by county and U.S. Congressional district. An analysis of SIC codes enables us to understand which sectors of Ohio's economy were most affected by job loss due to international trade.

The TAA and NAFTA-TAA program data ***significantly undercount*** the total number of workers in Ohio who have been displaced due to international trade for many reasons. These reasons are related to the program's eligibility criteria, and the lack of awareness of workers about the program. Until November 2002, the regular TAA program certified only workers who had been laid off because their employer faced an increase in imports of like products or products that directly competed with the firm's products.[11] These imports must have "contributed importantly" to the workers' layoff, or

threat of layoff.[12] The NAFTA-TAA program certified workers based on an increase in imports from Mexico or Canada. In addition, unlike the regular TAA program, the NAFTA-TAA program also certified workers if the employer transferred production to Canada or Mexico.

Many of the problems related to the program's eligibility criteria were not addressed until the enactment of the Trade Assistance Reform Act of 2002. One previous restriction was that the USDOL could not certify secondary job losses due to trade. In other words, job losses that occurred in supplier firms that did not directly compete with foreign imports were not covered. For example, workers at an auto parts firm that supplied parts to auto assembly plant might be laid off because the assembly plant cut production due to increased imports of foreign cars. Under former law, the workers at the assembly plant would have been covered, but not the workers at the firm making auto parts. Also, until 2002, only the NAFTA-TAA program could certify workers who lost their jobs because an employer moved production to a foreign location. This meant that only jobs lost because production was moved to Canada or Mexico were covered; job losses due to production shifts to Asia or elsewhere were not counted. The program does not cover relocations of production to a U.S. possession or territory.

Even after the reforms, the program still has only indirect coverage for establishments that provide a service rather than produce a good. The program only will cover workers who provide services to a TAA-certified production facility in the same company. For example, workers who were laid off from a company's accounting or computer-support services could now be covered if they provided these services to a certified production facility. These restrictions mean that the TAA program certifies only a small fraction of workers who are laid off due to the outsourcing (or "offshoring") of information technology (IT) and call center jobs to foreign countries. There are no reliable estimates of the number of jobs that have been lost for this reason, but a report by Forrester Research has predicted that 3.3 million service jobs would move overseas by the year 2015.[13]

Another reason that the program data undercounts job loss due to trade is that there may be limited awareness among affected workers and companies about the program's existence and its potential benefits. The establishments that apply for a determination under the program tend to be larger than the typical manufacturing establishment, and are more likely to be unionized. The AFL-CIO and some of its member unions have initiatives in place designed to raise awareness of trade adjustment programs and to provide guidance to union members in the petition process.

Therefore, because of the TAA and NAFTA-TAA program's limited coverage, the data reported below establish a ***minimum estimate*** of job loss due to international trade. Their importance for this study is that they permit us to pinpoint a specific establishment at a particular time that experienced job losses due to international trade.

The Trade Adjustment Assistance Reform Act of 2002

The Trade Adjustment Assistance Reform Act was passed by Congress in August, 2002 to update the existing TAA program. Its provisions are applicable to petitions filed on or after November 4, 2002, so it affects the final year of data analyzed for this portion of the study. The Act ended the former NAFTA-TAA program but applied its provisions regarding shifts in production to any country that has a free or preferential trade agreement with the U.S, not just Canada or Mexico. As noted above, the Act changed eligibility requirements to better reflect the ways in which international trade can reduce employment. The Act established four alternate criteria that a petitioner may meet to establish eligibility and receive certification from the USDOL:

(1) increased imports contributed importantly to a decline in sales or production and to a layoff or threat of a layoff; or
(2) there has been a shift in production to a country with a free or preferential trade agreement with the United States;
(3) there has been a shift in production outside the United States and there has been or is likely to be an increase in imports of like or directly competitive articles; or
(4) loss of business as a supplier or downstream producer for a TAA-certified firm contributed importantly to worker layoffs.[14]

Under current law, a worker who is entitled to benefits under the TAA program may receive reemployment services through the state's federally-funded Workforce Investment System. Workers may also receive training services and additional financial support if they are in training and have exhausted their regular unemployment benefits. In addition, workers may be reimbursed for the cost of a job search and for relocation outside of their area.

Interpreting and Utilizing Trade Adjustment Assistance Program Data

The TAA and NAFTA-TAA data utilized for the study includes a "determination date" for each petition, which is the date on which the USDOL makes its decision public. The determination date is not the separation date for the workers covered in the petition, although in some instances the two dates are close. By law, a certification cannot apply to a separation that occurred more than one year before the petition date. Because a certification covers workers who are already separated and those who are threatened with separation, the actual separation date for workers at a specific establishment may be before or after the determination date listed on the petition. Moreover, all of the affected workers at a plant may not be separated on the same day. To resolve these issues, each determination establishes a time period during which workers who are separated from the establishment are eligible to apply for trade adjustment assistance.[15] The time period for eligibility begins at a date on which the investigation determined that the establishment was impacted by foreign trade, and generally continues for two years after the date of certification. This study did not attempt to ascertain precise separation dates associated with each certified petition. Instead, when data are categorized by year in the tables

shown below, the study utilizes petition determination dates as a reasonable approximation of when separation actually occurred.

The estimated number of workers listed in each determination may be higher or lower than the actual number of separations. Although the employment outlook for manufacturing workers has been bleak in recent years, the data presented below should not be interpreted to mean that all of the certified workers became unemployed or that all of them applied for and received trade adjustment assistance. Some workers who became separated were able to find jobs. Others may have exited the workforce altogether in order to retire, go to school, or become homemakers.

In analyzing trade adjustment data, it became apparent that some establishments were certified under both the NAFTA-TAA and TAA for the same number of workers. In order to prevent "double-counting" of certified workers, these cases were treated as duplicates, and were handled by excluding the TAA program entry from the analysis. By allocating the estimated workers from these cases to the NAFTA-TAA program, the study is able to achieve greater specificity as to the cause for separation. In all, 64 TAA cases were excluded from the analysis.[16] In three cases, the TAA and NAFTA-TAA certifications applied to the same establishment but the TAA determination listed a much larger number of certified workers. In these cases, both entries were retained but the TAA program estimate for certified workers was reduced by the number of estimated workers listed in the NAFTA-TAA determination. After these adjustments, the study analyzed a combined total of 378 certified petitions from the TAA and NAFTA-TAA programs.

For determinations issued after the merger of the NAFTA-TAA and TAA programs, the study examined the notice of determination in order to confirm the reason for worker separations. If the reason was because of trade with Canada or Mexico, the case was included with the NAFTA-related analyses below. Due to these adjustments and elimination of duplicate entries, the number of certifications and estimated workers reported in this study may not match other published reports of the TAA and NAFTA-TAA data in Ohio.

Job Losses demonstrated by TAA and NAFTA-TAA Program Data

Ohio is not alone in losing a substantial number of jobs due to foreign trade. Nationally, in federal fiscal year 2002 (October 1, 2001, to September 30, 2002), the TAA program certified 1,614 establishments covering an estimated 232,898 workers. During that same time period, the NAFTA-TAA program issued certifications for 745 establishments covering an estimated 112,093 workers.[17] In total, an estimated 344,991 workers became eligible to apply for trade adjustment assistance in federal fiscal year 2002. During that time period, the U.S. manufacturing sector shed 697,000 jobs on a SIC basis.[18] As noted above, some of the certifications issued by the TAA and the NAFTA-TAA are duplicative. On the other hand, we know that these programs did not cover all jobs that were lost for trade-related reasons, such as changes in exports. If all of the layoffs covered under the trade adjustment certifications issued during federal fiscal year

2002 had occurred during that time period, they would account for approximately 49% of total job loss. Even if this proportion is somewhat inflated because of duplicate certifications, it is clear that a significant proportion of job loss in the U.S. manufacturing sector is due to international trade, rather than domestic demand conditions and productivity improvement.

From January 1, 1995, to November 4, 2003, the TAA program and the former NAFTA-TAA program certified an estimated 45,734 workers in Ohio. The number of workers certified each calendar year is shown in Table 5. Certifications rose steadily after 1999 and peaked in 2002. Although the information displayed in the table does not include all of 2003, it is unlikely that additional certifications issued in the final two months of last year will cause the 2003 annual total to exceed that of 2002. Nonetheless, the number of workers certified in 2003 will be at a level higher than in any year from 1995 to 2000 (keeping in mind that program rules expanded eligibility after November, 2002). This pattern of increases from 1999 through 2002 is consistent with the heightened concerns that employers and employees have expressed over foreign trade in the last several years, and the expanding U.S. trade deficit.

Table 5. Estimated number of Ohio workers certified under the TAA and NAFTA-TAA programs, by year of determination

Year	Estimated number of workers
1995	2330
1996	2832
1997	3298
1998	2462
1999	4564
2000	4661
2001	6509
2002	13093
2003(p)	5985
Total	45734

Source: Policy Matters Ohio analysis of TAA and NAFTA-TAA Program data; (p) indicates partial year, through Nov. 4.

In the 1995-1998 period employment in Ohio's manufacturing sector held steady despite trade-related job losses. Employment gains in manufacturing were greater than job losses due to trade. From 1999 forward overall manufacturing employment declined dramatically. During this period, job losses due to international trade constituted a significant portion of overall manufacturing job loss in the state. Table 6 compares all TAA and NAFTA-TAA certifications in the manufacturing sector to total job losses in Ohio's manufacturing sector over a nearly five-year period ending in October 2003.[19] We fine that between one-sixth and one-fifth of the net job loss in Ohio's manufacturing sector was due to trade-related reasons.

Table 6. TAA and NAFTA-TAA worker certifications as a share of Ohio manufacturing job loss, January 1999 to October 2003 (in thousands)				
Manufacturing Employment*		Decline in Manufacturing Employment	TAA or NAFTA-TAA Certified Workers**	Share of Job Loss
Jan. 1999	Oct. 2003			
1024.8	841.0	183.8	34.6	18.8%

* Policy Matters Ohio analysis of U.S. Bureau of Labor Statistics CES survey data (NAICS basis).
** Estimated Ohio workers in SIC codes 20-39 certified under TAA and NAFTA-TAA between January 1999 and November 4, 2003.

Industrial Sectors with Trade-related job loss

Job losses from international trade were felt across many Ohio industrial sectors. The pain was not equally shared, however, as shown in Table 7. Electrical and electronic equipment, a sector that employed about 7% of Ohio's workforce in 1995, had the largest number of certifications.[20] The largest number of certifications (1,200) came from the shutdown of the LG Philips Display facility in Ottawa.

Besides LG Philips, this sector had many other large plants that were shutdown or had their workforces reduced dramatically. Companies in this sector that had more than 200 workers certified under the program were Ametek (Cambridge), Beam Steam (Montpelier), Crysteco (Wilmington), Eveready Battery (Fremont), International Wire (Bucyrus), Controlled Power Corp. (Canton), Hoover (Canton), Lucent (Columbus), Marconi Communications (Lorain & Elyria), Mr. Coffee (Glenwillow), United Technologies Automotive (Zanesville), and Wirekraft Industries (Cardington).

Table 7. Ohio Industrial Sectors with more than 1,000 TAA and NAFTA-TAA certified workers, 1995-2003*

Sector	Description	Workers	Share of Total Certifications
SIC 36	Electrical & Electronic Equipment	11,121	24.3%
SIC 33	Primary Metal Industries	7,643	16.7%
SIC 35	Industrial Machinery & Equipment	6,217	13.6%
SIC 37	Transportation Equipment	5,798	12.7%
SIC 34	Fabricated Metal Products	3,156	6.9%
SIC 23	Apparel & Other Textile Products	3,023	6.6%
SIC 32	Stone, Clay and Glass Products	2,492	5.5%
SIC 28	Chemicals & Allied Products	1,245	2.7%
SIC 38	Instruments & Related Products	1,211	2.7%
SIC 29	Petroleum & Coal Products	1,135	2.5%
	Total of industries shown in table	**43,041**	**94.1%**

* TAA and NAFTA-TAA certifications through Nov. 4, 2003.

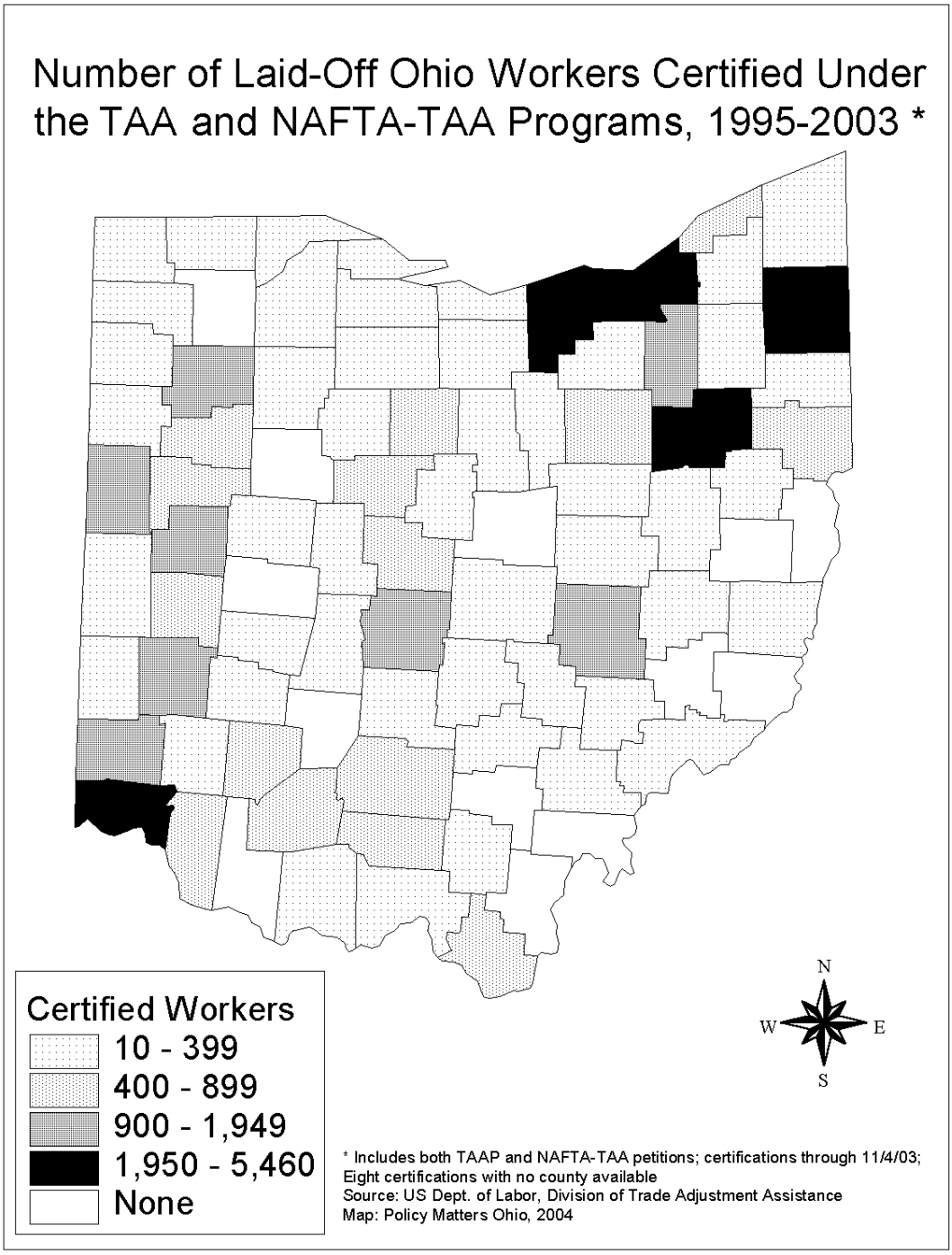
Primary metals had the second highest number of job losses. This sector includes steel mills and foundries. This sector has a long history in Ohio, but, along with facilities in the rest of the nation, it experienced a substantial reduction in employment over the last several decades. Employment stood at roughly 150,000 in 1975, but fell to 96,600 in 1995 (nearly 9% of Ohio's manufacturing workforce in that year on a SIC basis).[21] By December 2002, employment had fallen to 71,500. In the late 1990s, many companies were forced into bankruptcy, or into temporary shutdowns of facilities.[22]

Clearly, some portion of the industry's problem was due to the anti-competitive practices of foreign producers. Many iron and steel products imported into the United States were subject to additional tariff duties because foreign producers were subsidized or simply sold products below cost (i.e., "dumping"), so it is not surprising that 7,643 workers were certified in primary metals. Some of the companies that had over 200 workers certified were American Steel & Wire (Cuyahoga Heights), CSC (Warren), The Cincinnati Gear Company (Cincinnati), Ironton Iron (Ironton), LTV (Cleveland, Warren, Lorain), Midland Steel (Warren), Senco Products (Cincinnati), and Thomas & Betts (Strongsville).

Geographic distribution of TAA and NAFTA-TAA Certifications

Ohio is a highly urbanized state, and Ohio's manufacturing facilities are concentrated in or near urban centers. Not surprisingly, urban counties had the highest job loss. Cuyahoga County had the most certified workers of any county, 5,460. Other counties with more than 1,850 certified workers were Lorain, Stark, Hamilton, Trumbull, and Franklin. In all, the TAA and NAFTA-TAA programs certified workers in seventy-five Ohio counties. Appendix 1 contains a complete list of the number of certified

workers by county and a map showing the number of certified *petitions* from each county. Appendix 2 lists worker certifications by U.S. House of Representative districts (108th Congress). Twenty-eight certifications could not be located within a district. The number of certified workers per district ranged from a low of 860 to a high of 4,084. Only three of the 18 congressional districts had fewer than 1,000 certified workers.



NAFTA-related Job Loss

NAFTA became effective on January 1, 1994. The figures in Table 8 reflect NAFTA-TAA program data from 1995 until November 4, 2002, when the program was merged with the regular TAA program. The table also includes data from TAA certifications issued after the programs merged. The certifications were related to increased imports or a shift in production to Canada or Mexico. NAFTA-related job losses comprise 32% of total certifications, and include some of the largest layoff events in recent years in Ohio: the LG Philips facility in Ottawa, several Marconi Communications facilities in Lorain, and Amana Refrigeration in Delaware. These three companies accounted for over 3,000 certifications.

As noted above, critics of NAFTA viewed the agreement as a way for companies to use Mexico as a production platform for exports to the United States and Canada. Not surprisingly, as shown in Table 8 below, production shifts to Mexico alone account for nearly two-thirds of the workers certified for NAFTA-related reasons. Altogether, trade and investment with Mexico alone accounted for 81.56% of the workers certified for NAFTA-related reasons.

Table 8. Number of workers certified for NAFTA-related reasons, 1995-2003*

Reason for Certification	Estimated Workers	Share of NAFTA-related certifications
Company Shifted Production to Mexico	9407	64.2%
Supplier to a Company that Shifted Production to Mexico	229	1.6%
Increased Company Imports from Mexico	568	3.9%
Increased Customer Imports from Mexico	1747	11.9%
Mexico subtotal	11951	81.6%
Company Shifted Production to Canada	1783	12.2%
Supplier to a Company that Shifted Production to Canada	0	0
Increased Company Imports from Canada	0	0
Increased Customer Imports from Canada	495	3.4%
Canada subtotal	2278	15.6%
Increased Customer Imports from both Canada and Mexico	324	2.2%
High and rising aggregate U.S. Imports from both Canada and Mexico	100	0.7%
Both counties subtotal	424	2.9%
Total	14653	100%

Policy Matters Ohio analysis of TAA and NAFTA-TAA data.
* through November 4, 2003.

Part III. Estimates of trade-related job losses using an economic model

The previous section outlined some of the reasons that trade adjustment assistance program data undercounted job losses due to trade. Even if these problems were addressed, it is unlikely that any government program could provide a comprehensive estimation of the employment effects of trade. In order to do this, an economic model must be developed that takes into account the linkages among various sectors of the economy. This type of model is called an input-output model. Trade not only affects businesses that export or compete directly with foreign imports, but the suppliers to these firms as well. In other words, businesses that do not compete directly with foreign imports are affected by the impact of international trade on overall demand conditions.

The Economic Policy Institute (EPI), a non-profit, non-partisan economic research institute based in Washington, D.C., has estimated trade-related job loss by using a methodology that identifies net employment gains or losses in 192 SIC-based sectors of the national economy. The model addresses the "double-counting" problem that occurs in trade statistics when U.S. components are exported to a foreign assembly plant and then shipped back to the U.S. as part of a completed product. This issue is resolved by using a "net exports" methodology that examines changes in trade balances over time in individual sectors. Thus, the positive employment effects of an increase in exports may be overwhelmed by imports increasing at a faster rate. The model does not produce a cumulative total of year-to-year job losses or gains. Instead, it measures jobs and job opportunities – in other words, what employment in the manufacturing sector and closely related sectors would have been in a given year if the trade deficit had remained constant. Because the model estimates job opportunities using a hypothetical scenario in which the trade deficit remains constant, it is not equivalent to the trade adjustment assistance data, which measures only actual job losses due to imports or production relocations. The model estimates the effects of trade balances on a national level. Employment gains or losses are allocated to each state based the state's share of employment in a specific industry.

Over the 1994 to 2000 time period, EPI estimates that increases in the trade deficit cost a total of 3 million jobs and job opportunities in the U.S.[23] Because the U.S. economy was close to full employment in 2000, these job losses represent a massive transfer of employment out of the manufacturing sector. Ohio's share of this alarming total was approximately 135,000 jobs, almost 100,000 of which were in the manufacturing sector. Other states with over 100,000 jobs lost were California, Texas, New York, Michigan, Pennsylvania, Illinois, North Carolina, Indiana, and Florida. The transportation sector (mostly automobiles and parts) was the hardest hit sector of the Ohio economy, losing nearly 24,000 jobs and job opportunities. The primary metals, electronic equipment and machinery, and fabricated metal products sectors each had roughly 10,000 jobs and job opportunities lost.

A separate EPI study of job losses due to NAFTA is discussed under the heading "Trade with low-wage countries."

Part IV. Competing explanations for trade-related job loss

Our nation is currently engaged in a heated debate about the meaning of the decline in manufacturing employment. Some observers point to the country's surging trade deficit as the culprit. As Figure 2 on the next page shows, the total annual merchandise trade deficit, which includes agricultural products, oil & gas, and manufactured goods, increased from $183 billion in 1997 to $489.4 billion in 2003[24]. The trade deficit in manufactured goods alone is smaller, but is still following a downward trend to stand at $352 billion in 2002.[25] These trends show no signs of abating. The new totals for 2003, released on February 14, 2004, represented an all-time high.

It is not surprising that many of the Ohio industrial sectors that have high job losses over the past several years are those that have a worsening national trade balance. Table 4 (above) listed some major Ohio sectors and the number of Ohio jobs lost in each in recent years. Table 9 (below) displays the change in the annual trade balance for these same sectors at the national level over the 1997 to 2002 time period. Every one of these sectors had a worsening trade balance. The greatest absolute change was in the transportation equipment sector, in which the trade balance worsened by $57 billion. By 2002, only the machinery manufacturing sector had a positive trade balance. Even the chemical manufacturing sector, which began the period with a $19.5 billion trade surplus, ended with a $3.3 billion trade deficit.

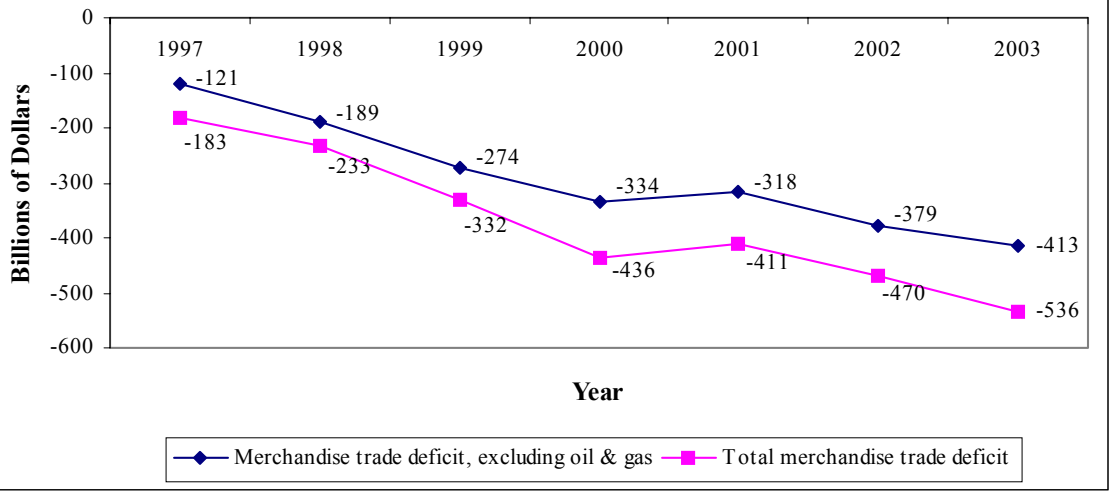
Table 9. U.S. Trade Balance in selected manufacturing sectors, 1997 – 2002 (in billions $, not inflation-adjusted)

	Trade Balance*		Absolute Change 1997-2002
Industrial Sector	**1997**	**2002**	
Transportation Equipment	(31.2)	(88.2)	(57.0)
Fabricated Metal Products	(1.7)	(8.6)	(6.9)
Primary Metals	(15.1)	(18.1)	(3.0)
Machinery Manufacturing	17.2	5.7	(11.5)
Plastics & Rubber Products	1.2	(2.5)	(3.7)
Computer and Electronic Products	(22.1)	(60.4)	(38.3)
Electrical Equipment & Appliance Mfg.	(4.5)	(17.4)	(12.9)
Nonmetallic Mineral Products	(4.1)	(7.2)	(3.1)
Chemical Manufacturing	19.5	(3.3)	(22.8)
Furniture and Related Products	(6.5)	(15.2)	(8.7)

Source: U.S. International Trade Commission. NAICS basis.
Parenthesis indicates a negative number; all numbers are rounded.

Figure 2 below shows that the United States trade balance in goods increased dramatically between 1997 and 2003 (not inflation-adjusted). The total U.S. merchandise trade deficit was nearly $536 billion in 2003, a record amount. Because the U.S. continues to run a surplus in service transactions, the overall U.S. trade balance, which included both goods and services, was $489.4 billion last year.

Figure 2. U.S Merchandise Trade Balance, 1997-2003
(Current Dollars in Billions, Not Inflation-Adjusted)



Source: Policy Matters Ohio analysis of U.S. International Trade Commission Data. General Imports, customs value, by Total Exports, f.a.s., for all countries; numbers are rounded.

Despite promises that the North American Free Trade Agreement (NAFTA) and U.S. entry into the World Trade Organization (WTO) would create a boom in export-related jobs, the net effect of these trade agreements was to increase the trade deficit.[26] In 2002, the trade deficit with China alone expanded by $20 billion to $104.2 billion and in 2003 the China deficit was $124 billion, a new record.[27] In 2003, China surpassed Japan to become the third-largest source of U.S. imports.[28] Canada is the leading source of U.S. imports and Mexico is second.

Major trade agreements created opportunities for multinational corporations to invest in low-wage countries in order to use them as production platforms to export products to the United States. Even when foreign direct investment was not involved, U.S. companies took advantage of the opportunity to develop suppliers in low-wage countries. Wage rates in many countries are far below U.S. levels, not only because of lower standards of living, but because government policies do not allow free collective bargaining. For example, Chinese wage rates average between $.50 and $2.50 per hour.[29] A lack of enforcement of environmental and workplace safety laws also creates significant cost advantages.

The cost advantage of foreign locations was magnified by the overvaluation of U.S. dollar against major foreign currencies. Overvaluation of the dollar makes foreign

imports less expensive but increases the price of U.S. exported goods in foreign markets. "The overvalued U.S. dollar has been the single greatest contributor to the crisis in manufacturing," states a recent report from the Economic Policy Institute.[30] The report cites Federal Reserve Board statistics showing that the real, trade-weighted value of the dollar rose 25% between 1995 and 2003. In 2003, this trend reversed itself as the dollar fell against the euro and the yen. Adjustment still has not taken place against the Chinese yuan, however, because China fixes the value its currency against the dollar, preventing adjustment in the exchange rate. China's currency was reported to be as much as 40% undervalued against the dollar in 2003.[31]

The surge in the trade deficit prompted many businesses to take action against foreign imports. The steel industry, which has been highly exposed to foreign competition, received tariff protection on various steel products following a finding by the U.S. International Trade Commission that foreign producers were being subsidized and selling products below cost. President Bush removed these protections on December 4, 2003, over the objection of the industry.[32] Other firms took political action to try to change U.S. trade policy. Small businesses in many industries urged the Bush Administration to challenge China's policy of fixing the exchange rate of its currency to the dollar at an unreasonably low level.[33]

Other observers took the more sanguine view that declining manufacturing employment was simply the acceleration of long-standing trends that have reshaped our nation's economy. In this view, employment decline in manufacturing is the result of continuing improvement in labor productivity, which means that over time employers have been able to increase output while reducing labor requirements. The rate of manufacturing productivity improvement outpaced that of the service sector, so that the share of the workforce employed in manufacturing declined. Since the 1970s, the annual rate of productivity growth in the durable goods sector has averaged 3.7%, and the nondurable goods sector has averaged 2.1%. Non-farm productivity growth has averaged 1.7% annually.[34] After the deep recession of the early 1980s, the national level of employment in manufacturing held steady, before declining in the last several years. Despite this, the real value of manufacturing production increased by 180% between 1986 and 2000.[35]

This sanguine view is severely undercut by the fact that the decline in manufacturing is not just a matter of decreasing employment, but of production as well. The manufacturing sector's share of national GDP fell from approximately 16% in 1999 to 14% in 2002 as measured in current dollars.[36] Whether manufacturing will recover all of its lost ground is an open question. Part of the reason that manufacturing production has not recovered quickly is that major U.S. industries have lost market share to foreign production.

Academic studies of worker displacement due to international trade

It matters a great deal whether imports increase gradually over an extended period of time. A gradual increase gives employers and employees time to adjust by finding

export markets or developing new products. Employment reductions can be handled through retirements or voluntary quits. Communities can adjust by adding jobs in other sectors of the economy. When imports rise quickly, however, they are more likely to lead to widespread worker displacement (i.e., layoffs), that bring personal hardship to unemployed workers and their families, and economic strain to their communities.

Many studies have found that higher levels of import penetration are associated with increased likelihood of worker displacements. For example, John T. Addison, et al., calculated a number of measures of trade sensitivity for 74 national industries at the three-digit SIC level between 1982 and 1986. The early 1980s were similar to the 1998-2002 time period because a strong dollar led to an import surge and trade frictions with a number of countries, most notably Japan. These measures included import and export penetration rates and "trade penetration" rates (the average of import and export penetration rates), which they compared to levels of workers displacement (i.e., layoffs) in each industry. The authors state that they "found a statistically significant positive association between trade sensitivity and the likelihood of job loss."[37] Specifically, they found the following:

> Displacements appear to be more frequent in industries with high imports and average trade penetration rates. Interestingly, displacements are fairly uncommon in industries with rapid export growth.[38]

A study by Lori G. Kletzer, an economist at the University of California-Santa Cruz, analyzed the relationship between trade and employment, including worker displacement, over the 1979 to 1994 period.[39] Kletzer found that rising imports were associated with reductions in employment. This association was stronger in "traditionally-import competing industries," a category that included three sectors that are prominent in the Midwest: electrical machinery, metals, and motor vehicles. Kletzer also found a significant relationship between trade and *job displacement* in traditionally-import competing industries, but could not substantiate this relationship for all industries in the study. Not surprisingly, increasing exports were associated with employment gains. Kletzer suggests that other factors, such as technological change and corporate restructuring, were also important to overall employment reductions in manufacturing.

Trade with low-wage countries

While the level of import penetration is important, the country of origin of those imports may be critical as well. Most U.S. trade with developed countries involves intra-industry specialization in which companies compete on a variety of product characteristics, and not just price. In this situation, comparative advantage is created by activities like research and development, product design, worker skills, and production techniques, and not through enormous differences in the product cost. Trade with less-developed countries may follow a different dynamic, however. Andrew Bernard and other economists affiliated with the National Bureau of Economic Research studied the impact of imports from "low-wage" countries (countries with less than 5% of U.S. per capita income) on plant-level employment, product mix, and output between 1977 and

1997.[40] They found that plants that operate in sectors with higher shares of imports from low-wage countries are less likely to survive, and exhibit lower rates of output and employment growth than establishments in sectors that faced less competition from low-wage countries. They also found that plants facing low-wage country imports are more likely to change their product mix to industries that are more capital-intensive and skill-intensive. Bernard et al.'s findings suggest that import competition from low-wage countries reduces U.S. employment in three ways – through plant shutdowns, slower growth in surviving plants that remain in the industry, and a reduction in the labor-intensity of plants that switch to a new product.

Until recently, Ohio and other Midwestern states had less exposure to Chinese imports because they were concentrated in labor-intensive categories such as toys, apparel, and women's accessories.[41] More recently, however, Midwestern industries such as motor vehicle parts, institutional and metal furniture, printed circuit assembly, and household appliances have faced substantial increases in imported products from China.[42]

A substantial proportion of imports from low-wage countries come from U.S.-owned production facilities, or result from co-production agreements between U.S. companies and foreign partners. Data from the U.S. Bureau of the Census indicate that 66.7% of U.S. imports from Mexico result from trade between "related parties," in other words, trade between businesses that are related by ownership ties. This proportion is lower in the case of China (20.5%).[43] Of course, U.S. multinationals have not been alone in investing in China. East Asian companies have also taken advantage of China's low labor costs to build assembly plants in China. Complex components are shipped to China, assembled to make a final product, and then exported to the United States and other developed-country markets. According to one estimate, two-thirds of China's export growth since 1994 results from production by subsidiaries or joint ventures of foreign (non-Chinese) multinational corporations.[44]

U.S. trade with Mexico clearly follows this pattern. A substantial proportion of U.S. "exports" to Mexico are components that are assembled and then sent back to the United States. This pattern of trade started in the 1960s under Mexico's *maquila* program, and then accelerated under NAFTA.[45] Consequently, the same component will be counted twice in U.S. foreign trade statistics – once as an export to Mexico, and then as part of the value of an import into the United States. Moreover, much of the growth in U.S. exports to Mexico does not represent an increase in U.S. industrial production, but a shift in component shipments from U.S. assembly plants to assembly plants in Mexico. (The same is true of U.S. exports to Canada). This situation makes it difficult to assess employment effects of trade with Mexico in general and effects of NAFTA in particular. Other macro-economic factors, such as devaluation of the peso resulting from Mexico's financial crisis of 1994-95, also play an important role in determining patterns of trade. Nonetheless, after ten years of existence, it is important to try to sort out some of NAFTA's employment effects.

In its report on NAFTA at the eight-year mark, the Office of the U.S. Trade Representative estimated that 914,000 U.S. jobs had been created by NAFTA because of increased U.S. exports.[46] This estimate seemed to assume that all exports represent newly created jobs, however. More restrained proponents of NAFTA argue that agreement's main effect on employment has been to shift jobs among sectors of the economy, rather than an overall job loss or gain. In general, they argue that the employment effects of NAFTA, whether positive or negative, have been very small in relation to the overall size of the U.S. economy.[47]

In a special report on NAFTA, *The Economist* of London, a business weekly that has supported free trade since the 19th century, reported that public perceptions of NAFTA in all three countries were largely unfavorable, and added that: "NAFTA's champions are partly to blame for this: they oversold their case. It was never plausible, for instance, to expect that NAFTA would be a net creator of jobs."[48] The report went on to state that the process of shifting jobs among sectors of the economy "was bound to be a painful process for some, even if it succeeded in making the member countries' economies more efficient overall…" "Here was another instance of false advertising" the report declared: "NAFTA was never going to be, as some enthusiasts claimed, a win-win proposition for all of North America's citizens, even if all three countries could hope to gain in the aggregate." Despite this, *The Economist* declared that the agreement had worked because it increased trade and investment.

In contrast to the U.S. Trade Representative's estimates that only looked at exports, the Economic Policy Institute (EPI) developed an economic model that took into account the employment effects of both exports and imports. EPI estimated that NAFTA caused a loss nationally of 879,280 jobs and job opportunities from 1993 to 2002.[49] Approximately 80% of these jobs were in the manufacturing sector. Ohio's share of this total was 46,593, the fifth largest loss of any state. Over 39,000 of these jobs were in manufacturing. These estimates seem entirely reasonable given that the federal NAFTA-TAA program certified a total of 525,094 workers nationwide from its inception to September 2003.[50]

During the 1990s, as the U.S. unemployment rate fell to very low levels, it was plausible to contend that NAFTA had little effect on overall U.S. employment levels. Workers displaced from traded-goods sectors generally could find some work in the service sector. This view cannot be plausibly maintained in the present economic environment, however. As discussed above, it cannot be assumed labor will always shift easily from one sector to another. More importantly, the debate over whether NAFTA's net effect on employment obscures the real underlying issue, which is *what kind of jobs* are being created and destroyed by NAFTA? The answer, at least for Ohio, is that displaced manufacturing workers are shifted into jobs that are likely to be lower paying, and with fewer benefits.

Conclusion

This study analyzed data from federal trade adjustment assistance programs to identify specific production facilities where trade-related job loss occurred in Ohio. This data fails to capture many trade-related job losses because of restrictions in program eligibility and lack of awareness of the program. Despite this, we pinpointed 45,734 jobs that were lost in Ohio due to international trade over the 1995 to October 2003 time period. Trade-related job losses certified under the TAA and NAFTA-TAA programs accounted for more than one-sixth of the decline in overall manufacturing employment during the troubled years between 1999 and 2003.

Because so many trade-related job losses are not captured by this data, we also report on findings from a previous study by the Economic Policy Institute (EPI). The EPI used an economic model that considered exports as well as imports, estimated impacts throughout the economy, and projected what levels of manufacturing employment would have been if the trade deficit had remained at a given level. According to this model, increases in the U.S. trade deficit from 1994 to 2000 removed more than 135,000 jobs and job opportunities from Ohio's economy, nearly 100,000 of which were from the high-paid manufacturing sector. Since that time, our trade deficit has soared higher each year.

According to the TAA and NAFTA-TAA data, 13 Ohio counties lost more than 1,000 jobs, with Cuyahoga County dropping more than 5,400 jobs for trade related reasons, the most severe loss of any county. However, the vast majority of counties – 75 of the 88 Ohio counties – saw some job loss due to international trade.

Ten industrial sectors had more than 1,000 trade-related job losses. Three of these sectors – electrical and electronic equipment, primary metal industries, and industrial machinery and equipment, accounted for over half of the 45,734 job losses.

Trade-related job loss is a significant factor in reducing manufacturing employment in Ohio. As our nation's trade policies lead to ever-increasing trade deficits, this trend will continue. This means that a significant proportion of manufacturing job loss is the result of deliberate policy choices, not the inevitable result of market forces or improvements in labor productivity. The consequences of the decline in manufacturing jobs are severe for laid-off workers and for Ohio's economy. Even in good economic times, displaced manufacturing workers are unlikely to be reemployed at comparable levels of pay and benefits. Some might argue that we should reconsider past trade agreements or structure agreements to better protect worker well-being in both countries involved. Given that trade policies are leading to job loss, we should also take steps to minimize the negative effects on affected workers and communities. These should include:

- Invest in job training and placement services for displaced workers. The Workforce Alliance argues that the federal government's investments in workforce development programs - particularly those targeting low-income adults and youth - have seen significant cuts in recent years. Their recent report found a near 30% reduction in annual funding (inflation-adjusted) for U.S. Department of

Labor job training programs since the mid-1980s.[51] Changes to welfare policy have often resulted in being more focused on short-term "work first" activities than on preparing people for high-wage or stable jobs.

- Ensure that an intact safety net is preserved for the many workers who have lost their jobs and may not find adequate replacement employment. Fiscal constraints at the federal, state and local levels threaten many parts of Ohio's safety net.

- Recognize that communities dominated by manufacturing employment will lose a substantial share of their income from trade agreements. Take steps at the state and federal level to assist these communities in maintaining strong local economies and school systems. Currently Ohio's system for funding K-12 education has been ruled unconstitutional for relying too heavily on local property tax funding.

- Expand access to higher education for young people, who will increasingly be unable to find decent-wage employment without higher education. Ohio is ranked 41st among the states in its support for higher education and the portion of our state budget devoted to higher education has dropped from 17% in the late 1970s and early 1980s to 12.6% in FY 2002.[52] Perhaps as a result, in the year 2000, only nine states ranked worse than Ohio in percentage of residents who had earned a BA.

Better support of education, training, human services and displaced worker services may ease the transition to other economic sectors, but they will not resolve the fundamental issue of whether our trade policies should encourage such transitions in the first place. The manufacturing sector sustained Ohio's economy for generations, and enabled millions of our citizens to enter the middle class. As yet, we have no replacement model of economic development that will create hundreds of thousands of high-paying jobs for non-college educated workers. It is vital that we reexamine our trade policies and acknowledge their true costs to Ohio and the nation. And it is imperative that we take steps to relieve those who have suffered most from these policies.

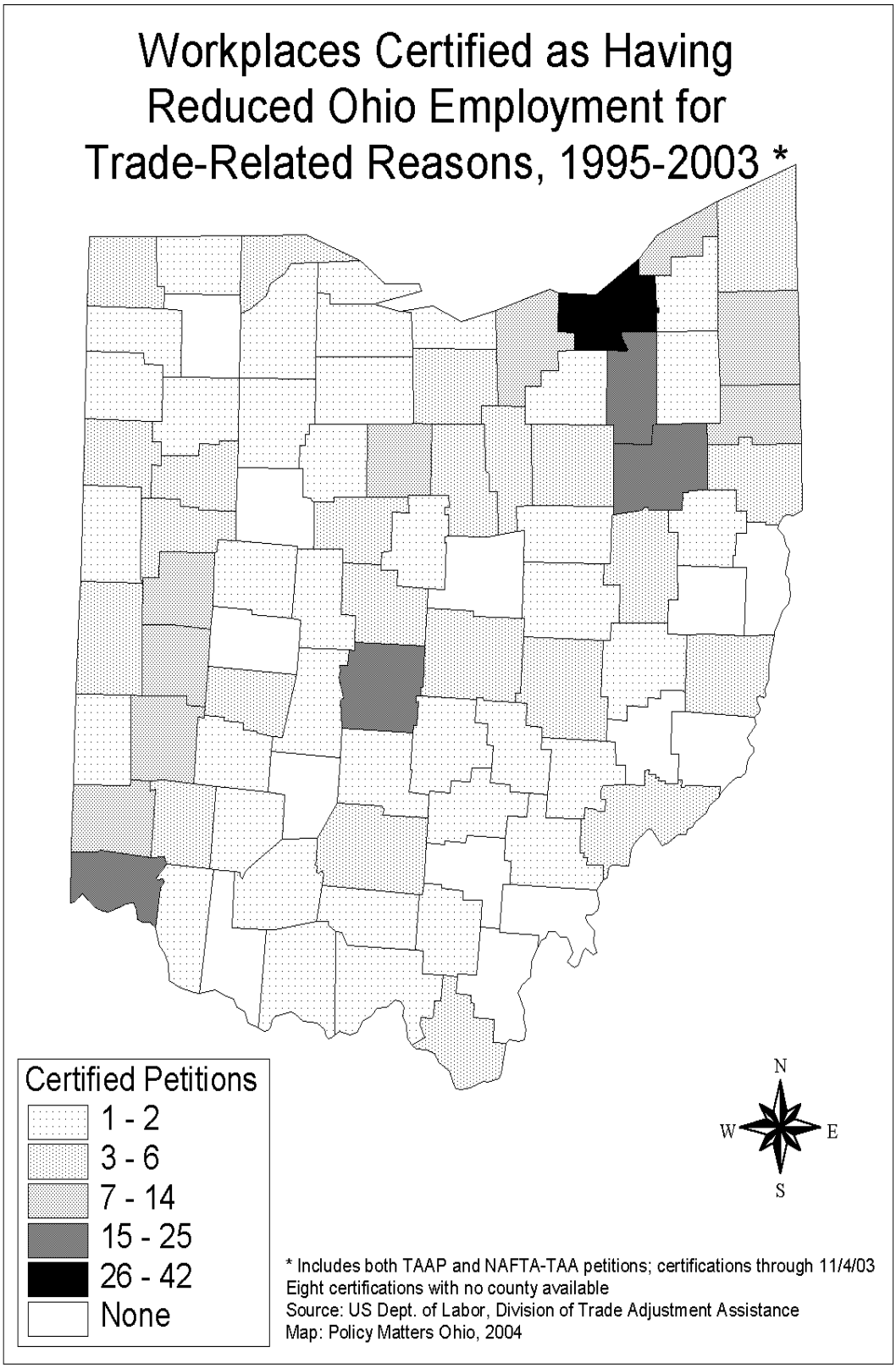
APPENDIX 1

Table 1. Number of estimated workers certified under the TAA and NAFTA-TAA programs in Ohio, by county, 1995-2003*

COUNTY	Certifications**	Certified Workers
1. Cuyahoga	42	5460
2. Lorain	14	3138
3. Stark	25	3138
4. Hamilton	24	2920
5. Trumbull	14	2712
6. Franklin	17	1934
7. Montgomery	11	1468
8. Shelby	8	1277
9. Putnam	2	1235
10. Muskingum	5	1139
11. Mercer	2	1100
12. Summit	19	1089
13. Butler	8	1046
14. Crawford	8	892
15. Ross	3	851
16. Pike	2	825
17. Lake	10	781
18. Miami	12	732
19. Marion	5	715
20. Wayne	4	705
21. Lawrence	3	698
22. Delaware	3	696
23. Allen	5	509
24. Warren	6	485
25. Auglaize	5	465
26. Clermont	1	460
27. Columbiana	4	447
28. Highland	1	420
29. Clinton	2	405
30. Williams	4	387
31. Van Wert	3	368
32. Licking	5	360
33. Guernsey	2	338
34. Lucas	3	328
35. Darke	5	322
36. Sandusky	2	319
37. Huron	5	311

38. Pickaway	2	308
39. Clark	4	306
40. Mahoning	9	304
41. Greene	2	279
42. Ashland	3	278
43. Washington	3	222
44. Belmont	3	211
45. Morrow	1	200
46. Preble	2	200
47. Defiance	2	197
48. Scioto	1	194
49. Hancock	2	180
50. Fairfield	2	165
51. Morgan	2	158
52. Perry	2	148
53. Ottawa	1	140
54. Tuscarawas	4	138
55. Coshocton	1	137
56. Fulton	1	137
57. Wood	2	137
58. Portage	2	134
59. Logan	2	130
60. Erie	2	125
61. Ashtabula	3	115
62. Athens	2	106
63. Paulding	1	91
64. Richland	3	85
65. Wyandot	2	71
66. Hocking	1	58
67. Adams	1	50
68. Medina	1	45
69. Holmes	1	40
70. Jackson	1	36
71. Madison	1	26
72. Carroll	1	13
73. Union	1	11
74. Geauga	1	10
75. Seneca	1	10
Total	370	45670

* Through November, 2003. Eight certifications, totaling 64 workers, could not be located in a county.
** Number of certifications after elimination of duplications (see the description in Part x, The Trade Adjustment Assistance Program)


Workplaces Certified as Having Reduced Ohio Employment for Trade-Related Reasons, 1995-2003 *
Certified Petitions
1 - 2
3 - 6
7 - 14
15 - 25
26 - 42
None
N
W
E
S
* Includes both TAAP and NAFTA-TAA petitions; certifications through 11/4/03
Eight certifications with no county available
Source: US Dept. of Labor, Division of Trade Adjustment Assistance
Map: Policy Matters Ohio, 2004

APPENDIX 2

Table 1. Worker Certifications by U.S. House of Representatives District Number (108th Congress)*

District	No. Certifications**	No. Certified Workers
1	14	860
2	11	2847
3	13	2170
4	33	3632
5	31	4084
6	16	1649
7	15	1331
8	32	3633
9	7	923
10	16	2131
11	8	950
12	11	2009
13	23	3590
14	25	1928
15	13	1257
16	30	3629
17	28	3411
18	24	3111
Total	350	43145

* TAA program and NAFTA-TAA certifications, 1995 through Nov. 4, 2003

** Represents 350 certifications; 28 certifications could not be located in a district

Endnotes

[1] "Measuring the Costs of Trade-Related Job Loss," Testimony of Lori G. Kletzer for the Committee on Finance, U.S. Senate, July 20, 2001. Available at http://www.iie.com/publications/papers/kletzer0701.htm. Kletzer is an economist at the University of California, Santa Cruz, who was a visiting fellow at the Institute for International Economics when she performed this research.
[2] Julie McKinnon, "From high pay to uncertainty: Ottawa deal with effects of Philip's loss a year ago," *Toledo Blade* article published December 7, 2003. Downloaded from www.toledoblade.com.
[3] *Id.*
[4] "Bryan identity was etched in sketch toy," *New York Times*, published December 7, 2003, reprinted in the *Toledo Blade*. Downloaded from www.toledoblade.com.
[5] "Etch A Sketch's new home harsh: Bryan icon's Chinese builders suffer cramped sites, dismal pay," *New York Times*, published December 7, 2003 in the *Toledo Blade.* Downloaded from www.toledoblade.com.
[6] U.S. Census Bureau, State and County *QuickFacts*, Ohio. Available at http://quickfacts.census.gov/qfd/states/39000.html.
[7] Information in the discussion that follows is from the *Ohio Job Outlook to 2010*, Bureau of Labor Market Information, Ohio Department of Job and Family Services (Year), "Occupations in Ohio with the Most Annual Job Openings." Available at www.lmi.state.oh.us.
[8] Metropolitan areas are multi-county regions that may include counties in neighboring states. *See* the *Ohio Labor Market Review*, Ohio Department of Job and Family Services for specific definitions.
[9] These categories do not match precisely with the TAA and NAFTA-TAA data because these programs report data under the SIC system, while the CES data in the table is reported in NAICS.
[10] Policy Matters Ohio analysis of wage record data from the Bureau of Labor Market Information, ODJFS.
[11] The program will also certify workers who have been "partially separated," meaning that their hours and wages were reduced to 80% or less of their previous levels.
[12] 19 U.S.C. Sec. 2272. The definition of "contributed importantly" was not changed by the enactment of the Trade Adjustment Assistance Reform Act of 2002. By law, the term "contributed importantly" meant a "cause which is important but not necessarily more important than any other cause."
[13] The Forrester Research number has been widely quoted in the press. *See* "Execs sign up for Outsourcing 101," Bruce Meyerson (AP), *Columbus Dispatch*, January 22, 2004, p. D-1, 2.
[14] *2003 Trade Policy Agenda and 2002 Annual Report of the President of the United States on the Trade Agreements Program* (Office of the U.S. Trade Representative), p. 248. Available at <http://www.ustr.gov/reports/2003.html>.
[15] Some certifications only cover a specific product line or group of workers at a plant who have been separated due to international trade. Therefore, the number of workers eligible to apply for trade adjustment assistance may be less than the total number of workers who were separated from the plant.
[16] These 64 cases involved 12,813 estimated workers. An additional four cases that received a "partial certification" were also excluded from the analysis.
[17] *2003 Trade Policy Agenda and 2002 Annual Report of the President of the United States on the Trade Agreements Program* (Office of the U.S. Trade Representative), p. 248.
[18] National job losses in manufacturing from October, 2001, to October, 2002, as measured by the CES. Source: USDOL, Bureau of Labor Statistics website.
[19] Approximately 1% of workers certified by the TAAP were laid off from non-manufacturing establishments.
[20] The sector employed 75,700 individuals in 1995. This represented 6.86% of Ohio's 1,102,300 total manufacturing workforce in 1995 on a SIC basis. (Policy Matters Ohio calculation based on CES data).
[21] Note that these employment figures are on a SIC basis.
[22] Some companies reopened with new management, but used far fewer workers and did not continue their pension and health care benefits for retirees.
[23] Robert E. Scott, "Where the Jobs Aren't: Particular industries and states bear brunt of dislocations wrought by trade agreements," Washington, D.C.: Economic Policy Institute (2001).
[24] Aversa, Jeannine, "U.S. Trade Deficit Marked Record High in '03: Imports Contributed to $489.4 billion tally," *Columbus Dispatch*, February 14, 2004, page 2B.
[25] The manufactured goods trade balance excludes agricultural and mineral products, as well as items that are returned to the U.S. or re-exported to Canada.

[26] Robert E. Scott, "Fast Track to Lost Jobs: Trade deficits and manufacturing decline are the legacies of NAFTA and the WTO." Washington, D.C.: Economic Policy Institute (2001).
[27] U.S. International Trade Commission, *Shifts in U.S. Merchandise Trade, 2002,* Washington, D.C.: USITC. Table 2-3, p. 2-7.
[28] U.S. Census Bureau Press Release, "Related Party Trade – 2002," "Exhibit 1. U.S. Merchandise Trade: Imports for Consumption for Selected World Areas and Countries – 2002." Available at <www.census.gov/foreign-trade/Press-Release/2002pr/aip/related-party.html.> Imports from Mexico accounted for 18.2% of all U.S. imports by value. China accounted for 10.8%, with Japan close behind at 10.5%.
[29] Testimony of Bruce Cain, Vice President of Manufacturing for Xcel Mold and Machine, Inc., of North Canton, Ohio, before the Commerce, Justice, State, and Judiciary Subcommittee of the U.S. House of Representatives, reported in "Ohians testify on China imports," *Akron Beacon Journal*, May 23, 2003, Malia Rulon (AP). Available at www.ohio.com.
[30] Josh Bivens, Robert Scott, and Christian Weller, *Mending Manufacturing: Reversing poor policy decisions is the only way to end current crisis*, Washington, D.C.: Economic Policy Institute (2003), p. 2.
[31] *Id.*
[32] Timothy Aeppel, "U.S.-China Trade Becomes a Delicate Issue of Turf," *Wall Street Journal*, July 8, 2003, p. A2.
[33] Peter Wonacott and Leslie Chang, "As Fight Heats Up Over China Trade, Business is Split," *Wall Street Journal*, September 4, 2003.
[34] William Strauss and Scott Walster, "The disappearance of manufacturing?," *Chicago Fed Letter* no. 190 (June 2003), available at www.chicagofed.org.
[35] PMO analysis of U.S. Federal Reserve Board series statistical release G.17, "Industrial Production and Capacity Utilization." Industrial Production, 1986 to pres., "GMF: Manufacturing, NAICS" series (not seasonally adjusted).
[36] Policy Matters Ohio analysis of Bureau of Economic Analysis data (Robert E. Yuskavage and Erich H. Strassner, "Gross Domestic Product by Industry for 2002," Table 1, "Gross Domestic Product by Industry Group in Current Dollars, 1999-02." BEA (May 2003).
[37] John T. Addison, et al., "Trade and displacement in manufacturing," *Monthly Labor Review*, April 1995, pp. 58-67. Quotation from p. 58. The authors use the Census Current Population Survey from 1988 to measure worker displacement.
[38] *Id.*, p. 63.
[39] Lori G. Kletzer, *Imports, Exports, and Jobs*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research. 2002.
[40] Andrew B. Bernard, J. Bradford Jensen, and Peter K. Schott, "Survival of the Best Fit: Exposure to Low-Wage Countries and the (Uneven) Growth of US Manufacturing Plants," National Bureau of Economic Research Working Paper, April 2003. http://www.iie.com/publications/wp/2003/03-3.pdf
[41] William Testa, Jay Liao, and Alexei Zelenev, "Midwest manufacturing and Trade with China," *Chicago Fed Letter* (November 2003).
[42] *Id.*
[43] U.S. Census Bureau Press Release, "Related Party Trade – 2002." To qualify as a related party, one of the companies must have at least a 6% ownership interest in the other.
[44] This estimate is by Stephen Roach, the chief economist at Morgan Stanley. "Tilting at Dragons," *The Economist*, October 25, 2003, pp. 65-66.
[45] The *maquila* program permitted foreign companies to import components duty-free on the condition that they would be used for final products that were re-exported to other countries. CITE
[46] *NAFTA at Eight: A Foundation for Economic Growth*, Office of the U.S. Trade Representative, 2001. Available at http://www.ustr.gov/naftareport/nafta8_brochure-eng.pdf.
[47] Michael Ferrantino, an economist at the U.S. International Trade Commission, points out that even the highest estimates of job loss due to NAFTA account for only one-half of one percent of all of the new unemployment claims filed between 1994 and August 2001. This estimate does not address unemployment claims resulting from layoffs in the manufacturing sector alone, however, and it was developed at a time when the economy is doing better than it is now. Moreover, Ferrantino does not distinguish between long and short-term unemployment claims. Michael J. Ferrantino, "Evidence of Trade, Income, and

Employment Effects of NAFTA," *Industry Trade and Technology Review*, U.S. International Trade Commission (December 2001).

[48] "Free Trade on Trial," *The Economist*, January 3, 2004, pp. 13-14, 17. Quotes from page 13.

[49] Robert E. Scott, "The High Price of 'Free' Trade": NAFTA's failure has cost the United States jobs across the nation," Washington, D.C. Economic Policy Institute (2003). Job loss figures are listed in Table 2, "NAFTA job creation and destruction by state, 1993-2002," p. 7.

[50] Sandra Polaski, "Jobs, Wages, and Household Income," in *NAFTA's Promise and Reality*, New York: Carnegie Endowment for International Peace, p. 28.

[51] The Workforce Alliance, "Skilling the American Workforce 'On The Cheap': Ongoing Shortfalls in Federal Funding for Workforce Development" Washington, DC, September 2003. Online at http://www.workforcealliance.org/.

[52] Ohio Board of Regents "A Policymakers' Guide to Higher Education in Ohio: 2002", Columbus, OH, September, 2002. Available online at http://www.ohioknowledgeeconomy.org/kea-materials.html