Globalization and job loss, from manufacturing to services

Lori G. Kletzer

Introduction

The impact of free trade, and more generally globalization, is a ready source of public debate, and the reach of that debate is broadening. When the impact of increasing foreign competition was felt mainly by the manufacturing sector (call this "stage one" of the free trade/globalization debate), the view of many, if not most, economists was strikingly uniform: Trade generates large net benefits to national economies. The gains accrue to consumers from lower prices and to the overall economy in efficiency, leading to higher aggregate welfare. Within the economics profession, there is similar, if less visible, agreement that liberalized trade reduces incomes to some producers and workers. With (large) net benefits, a common professional view of the question of "free trade" is a distributional one—that the distribution of the benefits from free trade, across industries, occupations, regions, and ultimately individuals, is uneven.

Perhaps not surprisingly, the economists' view does not resonate well with many Americans. Opinion surveys show that when asked a question mentioning both benefits and costs to trade, a majority of respondents chose the answer emphasizing the costs over the benefits (see chapter two in Scheve and Slaughter, 2001). It seems fair to conclude that many Americans have their doubts about the value of free trade, particularly when the costs are known to be borne by workers.

This dissonance of views arises from the nature of the economists' "It's a distributional issue" perspective. Economic theory suggests that not everyone benefits from free trade: Positive economy-wide benefits result from the gains of the "winners" exceeding the losses of the "losers." Clearly, some of the most contentious issues regarding free trade concern the size of the costs associated with moving workers from import-competing sectors to other parts of the economy. The highly visible nature of job loss, and the failure of current federal adjustment programs to compensate workers for their losses, clearly weakens popular support for the view that economic integration brings widespread benefits.

While perhaps overly simple, the characterization above captures much of the "free trade and jobs" debate, up to 2002.[1] That year saw the emergence of "services outsourcing," which I call "stage two" of the debate over globalization and the American labor market. Global outsourcing of services (or offshoring) is the services version of the globalized production that has become (almost) commonplace in manufacturing. With services outsourcing (potentially) broadening job loss to higher-skill (white-collar) workers and with its implicit challenge to presumed American comparative advantages, these activities appear to raise some new concerns, different from the ones voiced in the past.

Whether different or the same, the arrival of services outsourcing virtually guarantees that international trade and globalization will remain an important focus of public attention to job loss. The reverse will also likely continue to be true: Pervasive concerns about the incidence and consequences of job loss will remain an important part of discussions about globalization. In this article, I report on recent research on the nature and extent of manufacturing job loss related to trade. Investigations of services outsourcing are in their infancy, and my discussion reflects that thin knowledge base.

My discussion here is framed by the perspective that understanding the labor market costs of global

Lori G. Kletzer is a professor of economics at the University of California, Santa Cruz, and a nonresident senior fellow at the Institute for International Economics. *The author is grateful to Roger White for his help with the international trade data.*

trade is a requirement for moving forward equitably on the path of international economic integration. To understand how the principle of national net benefits from free trade can be translated into programs that compensate workers, it is necessary to identify who bears the burden of costs and to measure the size of that burden. In Kletzer (2001, 2002b), I report on recent research measuring the extent and nature of job loss related to imports; and in Kletzer (2002a), I summarize that research, with a particular focus on job losses associated with the North American Free Trade Agreement (NAFTA).

In what follows, I summarize what is currently known about the magnitude of job loss related to import competition. Current research suggests that high import-competing industries accounted for about 40 percent of manufacturing job losses from 1979 to 2001. I describe the earnings losses associated with trade-related job loss. I also discuss the little that is currently known about services outsourcing. I conclude with a brief discussion of policies aimed at ameliorating the impact of import-related job loss on workers. Although job displacement due to services outsourcing is likely a small part of economy-wide job displacement, it is likely to grow in importance in the future. With this growth will likely come pressure to change or expand worker adjustment programs.

What we know about trade and job loss: Evidence from manufacturing[2]

Trade displacement is a notion that exists in public discourse, in large part due to the Trade Adjustment Assistance Act (TAA), first passed by Congress in 1962. With 40-plus years of usage, trade-related job loss is commonly understood to mean job loss due to increasing imports, and a trade-displaced worker is a worker for whom increased imports have contributed to job loss. This definition faces a number of complications, including the obvious: We have no way of knowing for certain whether a given worker is trade displaced, nor do we have any widely agreed-upon ways of identifying the share of workers in a given industry who are trade displaced. Within academic circles, there is the additional empirical challenge of capturing the causal nature of the "trade and employment change" question (see Kletzer, 2002b, for details). My research takes as its starting point that there is a common notion of trade displacement in public discourse. I have sought to define the term in a way that is grounded in economic analysis. My goal has long been to identify workers whose job loss is associated with rising imports. I am not claiming to prove that trade or imports are the cause of the job loss.[3]

The notion of an import-competing industry can be made operational by considering changes (specifically increases) in import share (also called import penetration rate). Import share is calculated by dividing industry imports by the sum of industry output plus imports (thus the denominator is industry supply). As noted in Kletzer (2002b), changes in import share can be conceptually related to changes in employment and job loss (through changes in product demand).[4] Industries with rising import shares are where we might expect to see a relationship between the flow of imports and declining domestic employment and job loss. In Kletzer (2001), I defined a set of highly "import-competing" industries as those industries in the top 25 percent of a ranking of industries by their percentage change in import share over the 1979–94 period (from largest positive to smallest). Industries in this top quartile, those with the largest percentage increases in import share, include most of the ones we would call traditional import-competing industries: electrical machinery, radio and television, apparel, motor vehicles, footwear, blast furnaces, knitting mills, and toys and sporting goods. This industry definition, applied to the worker-based *Displaced Worker Surveys* (DWS),[5] yielded a sample of highly import-competing displaced workers, based on a worker's industry of displacement.

Table 1 lists the high import-competing (or import-sensitive) industries, as defined in Kletzer (2001), with updated trade information for the period 1979–96.[6] These industries are the most likely to produce import-competing job losses, and we can usefully consider workers displaced from these industries to be import-competing displaced workers. Industries are listed in table 1 in order of estimated total number of workers displaced during the period 1979–2001 from largest to smallest.[7] High import-competition industries vary from low-wage (apparel, footwear, knitting mills, leather products) to high-wage sectors (computers, blast furnaces, tires and inner tubes, construction and material moving machines, motor vehicles).[8]

Along with the number of workers displaced, table 1 reports each industry's share of manufacturing displaced. The large employment industries, such as electrical machinery, apparel, transportation equipment, and non-electrical machinery, accounted for about 30 percent of manufacturing displacement. The risk of job loss in an industry is roughly captured by the job loss rate (calculated on a yearly basis as the ratio of the number of workers displaced to average industry employment). That rate is reported in table 1 as an average across the years 1979–2001. As discussed in Kletzer (2001), the link between risk of job loss and

TABLE 1

High import-competing industries (top quartile by change in import share for 1979–94), by estimated number of workers displaced for 1979–2001

	Total displaced 1979–2001	Share of total mfg. displaced	Mean job loss rate	Change in import share			1979 import share	Change in exports 1979–96	Importer/exporter? Balanced/unbalanced?
				1979–96	1979–85	1985–96			
Electrical machinery	1,851,348	0.104	0.044						
Electrical machinery	1,381,647	0.078		0.2104	0.0712	0.1392	0.1066	2.3022	Balanced importer
Radio, TV	469,701	0.026		0.1978	0.0458	0.152	0.151	2.1083	Unbalanced importer
Apparel	1,279,081	0.072	0.056						
Apparel	1,130,502	0.064		0.2659	0.1034	0.1625	0.1322	1.9257	Unbalanced importer
Misc. fabricated textiles	148,579	0.008		0.1085[a]	0.0434	0.0651[b]	0.0397	0.1624[a]	Unbalanced importer
Transportation equipment	1,056,002	0.059	0.053						
Motor vehicles	988,938	0.056		0.1153	0.0857	0.0296	0.1733	0.8671	Unbalanced importer
Cycles & misc. transport	67,064	0.004		–0.0623	–0.0221	–0.0402	0.2906	1.5842	Balanced importer
Machinery, except electrical	997,321	0.056	0.065						
Electronic computing equipment	605,569	0.034		0.402	0.086	0.3160	0.1031	2.5337	Balanced exporter
Construction & material moving machines	350,675	0.020		0.1605	0.0905	0.07	0.0595	–0.2013	Unbalanced exporter
Office & accounting machines	41,077	0.002		0.3026	0.0827	0.2199	0.0795	0.2699	Balanced importer
Metal industries	518,898	0.029	0.066						
Blast furnaces	364,943	0.021		0.0923	0.0739	0.0184	0.1191	0.072	Unbalanced importer
Other primary metal	153,955	0.009		–0.0259	0.0222	–0.0481	0.189	0.3069	Balanced importer
Misc. manufacturing	355,601	0.020		0.3813	0.1099	0.2714	0.1857	0.6293	Unbalanced importer
Leather & leather products	243,762	0.014	0.081						
Footwear	188,149	0.011		0.3873	0.2192	0.1681	0.3478	3.1746	Unbalanced importer
Leather products	47,897	0.003		0.42	0.195	0.225	0.2694	1.0899	Unbalanced importer
Leather tanning & finishing	7,716	0.000		0.1145	0.0725	0.042	0.16	2.9170	Balanced exporter

TABLE 1 (CONTINUED)

High import-competing industries (top quartile by change in import share for 1979–94), by estimated number of workers displaced for 1979–2001

	Total displaced 1979–2001	Share of total mfg. displaced	Mean job loss rate	Change in import share			1979 import share	Change in exports 1979–96	Importer/exporter? Balanced/unbalanced?
				1979–96	1979–85	1985–96			
Professional & photographic	244,497	0.014	0.014						
Scientific & controlling instruments	163,637	0.009		0.0714	0.0424	0.029	0.0743	1.8561	Balanced exporter
Photographic equipment	71,917	0.004		0.2080	0.0519	0.1561	0.1206	20.2364	Balanced importer
Watches, clocks	8,943	0.001		0.4297	0.2261	0.2036	0.3873	0.6220	Unbalanced importer
Rubber & misc. plastics	203,402	0.011	0.033						
Other rubber products	118,284	0.007		0.3103	–0.0125	0.3228	0.0861	0.3150	Unbalanced importer
Tires & inner tubes	85,118	0.005		0.0682	0.0380	0.0302	0.1295	8.4873	Unbalanced importer
Textiles	886,593	0.050	0.036						
Knitting mills	241,236	0.014		0.0261	0.0973	–0.0712	0.0606	1.4685	Unbalanced importer
Dyeing textiles	43,522	0.002		0.0704[a]	0.0349	0.0355[b]	0.0452	—[c]	Balanced importer
Floor coverings	62,417	0.004		0.0262	0.0220	0.0042	0.0466	0.6776	Balanced importer
Yarn, thread	539,418	0.030		0.0837	0.0450	0.0386	0.0402	0.2267	Balanced importer
Misc. textiles	44,666	0.003		0.0127	0.0145	–0.0019	0.1183	0.9203	Balanced importer
Toys & sporting goods	171,050	0.010	0.069	0.3008	0.1480	0.1528	0.2292	1.7489	Unbalanced importer
Pottery & related	22,536	0.001	0.056	0.0821	0.1054	–0.0233	0.3126	1.0155	Unbalanced importer
Totals/means	7,107,795	0.399	0.039	0.1832	0.0846	0.1027	0.1689	2.2862	

[a]Change in import share presented spans period 1979–1994.

[b]Change in import share presented spans period 1985–1994.

[c]Values missing due to changes in industry classification schemes.

Sources: National Bureau of Economic Research (NBER) trade database (1979–94 import, export, and industry shipment values); USITC trade database (1995–96 import and export. values); NBER–CES manufacturing industry database (1995–96 industry shipment values); U.S. Bureau of Labor Statistics, *Displaced Worker Surveys*.

rising import share is somewhat complex: Some industries with high rates of job loss had large increases in import share (leather and leather products, pottery and related products), but within and across industries, the relationship between rising import share and job loss risk is fairly weak.

I report changes in import share for 1979–96, 1979–85, and 1985–96. The appreciation of the exchange value of the dollar from 1981 to 1985 was particularly important for American manufacturing. The strong dollar made U.S. exports more expensive to buy and made imports cheaper. Recovery from the 1981–82 recession fueled U.S. demand for foreign imports, while the more sluggish recovery of U.S. trading partners dampened demand for U.S. exports. The exchange value of the dollar peaked in 1985 (with the September 1985 Plaza Accord), and the dollar depreciated about 30 percent from 1986 to 1989. Thus, it is appropriate to consider a pre-1985 period and a post-1985 period.[9]

One additional point about "trade" is that the discussion here follows a tradition of focusing on imports when examining the costs of trade. Trade, of course, includes both imports and exports, and many industries, including the high import-competing ones highlighted here, do both. The simple view of trade, that the U.S. imports watches and apparel and exports airplanes and construction equipment, is not only simple, it is wrong. A more realistic view is that the U.S. exports and imports all or parts of all these goods, either as intermediates or as final goods. Before moving on, it is important to note that the "importers" noted here are also exporters. Electrical machinery and equipment, motor vehicles, and electronic computing equipment count among the top exporters, as well as being importers.

This notion of within-industry, two-way trade, has an extensive literature.[10] As I report in more detail in Kletzer (2001), a simple variation of the trade overlap index of Grubel and Lloyd (1975) provides some insight on an industry's level of engagement in world trade. This measure is reported in the last column of table 1. Balanced industries are those with a high degree of trade overlap (both imports and exports), where the flows of exports and imports are equal (or nearly so). Unbalanced industries are those where one of the flows dominates the other in size.

As seen in table 1, 23 of the 27 three-digit industries listed are importers, with 14 unbalanced importers. The industries we most strongly associate with import competition are also unbalanced importers (apparel, motor vehicles, blast furnaces, footwear, knitting mills). Among the balanced importers (electrical machinery, cycles and miscellaneous transport, office and accounting machines, photographic equipment), some of the textile industries are particularly notable. In terms of job loss, these industries can be vulnerable to both rising imports and declining exports. As I report in Kletzer (2002b), the focus on import competition and jobs underplays the link between exports and jobs. Export growth is associated with employment growth, and as sales increase due to exports, the risk of job loss falls.

Using a somewhat conservative count of displaced workers, I estimate that 18.6 million workers lost jobs in all of U.S. manufacturing during the period 1979–2001, about 37 percent of the total U.S. nonagricultural job loss of 49.8 million.[11] During this period, manufacturing represented, typically, just under 18 percent of total nonagricultural employment. The high import-competing group accounted for about 40 percent of manufacturing displacement, at 7.45 million workers. During the 1979–2001 period, these industries accounted for just under 30 percent of manufacturing employment.

In Kletzer (2002a), I reported estimates of the extent of job loss related to NAFTA and imports, and concluded that NAFTA-import-related job loss accounted for 24 percent–27 percent of manufacturing job losses over the 1993–99 period. For the economy overall, NAFTA-import-related job losses are more modest, accounting for 10.7 percent of the total.

Just from these estimates, we see that import-related job loss is a sizable share of U.S. manufacturing job loss and a much smaller share of economy-wide job loss.[12] Although the "trade and jobs" debate will continue to focus on the numbers of jobs lost, it is important to note that total employment is essentially determined by macroeconomic conditions and policies, both in the U.S. and worldwide. As noted above, the impact of "trade" is distributional—on where the jobs are located.

Trade, job loss, and policy

Compared with other Organization for Economic Cooperation and Development (OECD) countries, the U.S. has a modest set of labor market adjustment programs (primarily unemployment compensation, training and job search through the Workforce Investment Act and Trade Adjustment Assistance).[13] With workers bearing most of the burden of labor market change and flexibility, the fact that the U.S. provides only modest adjustment assistance programs tends to heighten anxiety over government policies that might place (more) workers at risk of job loss. Trade liberalization is one example. Historically, Trade Adjustment Assistance (TAA) has been seen as trade policy, a

response to the uneven distribution of benefits and costs arising from trade, and only secondarily as labor market adjustment assistance. TAA is provided to workers displaced by "trade," while other displaced workers are eligible for a lesser set of benefits through the Workforce Investment Act. For policy, it is important to question this underlying assumption. Are trade-displaced workers different from other displaced workers? What are the characteristics of trade-displaced workers? What are the labor market consequences of this type of job loss? I have answered these questions in some detail in my earlier work. What follows is a summary—Call these the stylized facts of trade-related job loss.[14]

On average, the import-competing displaced worker looks very much like any other displaced manufacturing worker. However, there is a striking difference in the degree to which high import-competing industries displace women, particularly the lower-wage import-competing industries, which tend to employ large shares (and often large numbers) of women. Across apparel, textiles, footwear and leather products, women accounted for 65 percent–80 percent of workers displaced over the period 1979–2001 and slightly smaller shares of employment. Observers note that this gender predominance may occur again as call-centers and back office processing move to other countries.

As reported in more detail in Kletzer (2001), compared with displaced non-manufacturing workers, import-competing displaced workers are older, less formally educated, notably more tenured, less likely to be female, more likely to be minority, and far more likely to be production-oriented.

For many workers, import-competing job loss is very costly, due to difficulties finding new employment at a level of pay similar to the old job. Two-thirds of reemployed workers earn less on their new job than they did on their old job, and one-quarter experience earnings losses in excess of 30 percent. The average earnings loss is more modest, but still sizable at 13 percent. The distribution of earnings losses is very similar to that found for all workers displaced from manufacturing jobs for other reasons.

Import competition is associated with low reemployment rates (on the order of 63 percent for the period 1979–2001). The characteristics that limit the reemployment of import-competing displaced workers are the same as those that limit the reemployment of all displaced workers: low educational attainment, advancing age, high tenure, minority status, and marital status. Workers with high tenure and/or low skill levels may confront serious skill-related adjustment problems, along with having rusty job search skills. Workers with these characteristics appear to need the most help.

For most workers, the costs of job loss occur as reemployment earnings losses. Less formally educated workers experience the greatest difficulty maintaining earnings. More generally, reemployment earnings losses rise with age and job tenure and fall with education.

Reemployment in manufacturing minimizes earnings losses (on average). An advantageous outcome for production workers with manufacturing-specific skills is to stay employed in manufacturing. Earnings losses are reduced if the worker gets a new job in an industry similar to the one in which he or she was previously employed. Reemployment in services is associated with the largest earnings losses. There may be little retraining associated with these moves.

In summary, manufacturing workers are wise to be anxious about losing jobs and wages. Permanent job loss is costly for many manufacturing workers. Trade liberalization is often a flash point for the fear of job loss, while other factors, notably technological change, rank ahead of trade as a source of job loss and declining real wages for less-educated workers. Shifts in international investment, corporate restructuring, and changes in consumer demand are other sources of change that affect job security and wages. Two of these forces, shifts in international investment and (information) technological change, are coming together to influence what is being called services outsourcing.

What do we know about services outsourcing?

Globalization, particularly in the guise of globalized production, is evolving and broadening from a manufacturing base into services. These changes, and their implications for American workers, have attracted widespread attention. Services now account for a larger share of global trade than they have in the past. Trade in services has almost doubled over the past decade: Over the period 1992 to 2002, service exports increased from $163 billion to $279 billion and imports grew from $102 billion to $205 billion.

Coincident with the broadening of global economic integration from manufacturing to services, the face of job displacement in the United States is changing. While manufacturing workers have historically accounted for more than half of displaced workers, in the most recent downturn non-manufacturing workers accounted for 70 percent of displaced workers.[15] The industrial and occupational shift in job loss has been associated with a rise in the probability of job loss for more-educated workers.[16] For example, the share of job losses accounted for by the finance, insurance, and real estate, business services, and professional services sectors, all relatively high-skill industries, more than

doubled from 15 percent during the 1979–82 recession to 34 percent during the 2000–01 period.

Currently, there is little clear understanding of the role of services globalization in domestic employment change and job loss. More fundamentally, there is little clear understanding of the size and extent of services global outsourcing, the vulnerabilities of American workers, and how large this phenomenon is likely to become in the near term.[17]

What is known comes from mostly subjective judgments, though admittedly based on detailed industry knowledge. The most widely quoted projection of future job losses due to movement of jobs offshore is Forrester Research's "3.3 million U.S. services jobs to go offshore" (McCarthy, 2002). In addition, Deloitte Research estimates that by the 2008 the world's largest financial service companies will have relocated up to two million jobs to low-cost countries; Gartner Research predicts that by the end of 2004, 10 percent of information technology (IT) jobs at U.S. IT companies and 5 percent of IT jobs at non-IT companies will have moved offshore; another Gartner Research survey revealed that 300 of today's Fortune 500 companies do business with Indian IT services companies. Goldman Sachs estimates that 300,000 to 400,000 services jobs have moved offshore in the past three years and anticipates a monthly rate of 15,000 to 30,000 jobs, in manufacturing and services combined, will move offshore in the future. Bardhan and Kroll (2003) estimate that 14 million workers are vulnerable to job loss from services outsourcing.

While the size and scope of this activity are not clear, the changing location of service activities is likely to affect labor market outcomes of U.S. service sector workers. Research on this question is barely in its infancy. In preliminary work with J. Bradford Jensen (Jensen and Kletzer, 2004), I have begun to explore comparisons between displaced manufacturing workers and displaced services workers. Very briefly, we are learning that the incidence of job displacement is notably lower in services than in manufacturing. Where the risk of job loss can average 6 percent to 7 percent (annual averages) in manufacturing, for the three services industries commonly mentioned as vulnerable to offshoring (finance, insurance, and real estate; business services; and professional services), incidence averages around 2 percent to 3 percent for the period 1979–2001. The risk of job loss is trending upward over the period for services, starting from a relatively low level. The share of displaced workers accounted for by services has increased over time, as has the share of employment.

In terms of outcomes, reemployment rates are higher for displaced services workers than observed for displaced manufacturing workers. Reemployment rates average about 70 percent to 75 percent for services workers, compared with 65 percent in manufacturing. Reemployment rates fell considerably from the late 1990s to the 2000–01 recession in both services and manufacturing.

Workers displaced from services are more highly educated than workers displaced from manufacturing, with key differences at the lowest and highest ends of the educational attainment distribution. Relatively few displaced services workers are high school dropouts (ranging from 3 percent to 10 percent), while 30 percent to 40 percent of displaced manufacturing workers are high school dropouts (depending to some extent on the industry). Although there is a considerable degree of variation, for the most part, pre-displacement earnings were higher for services than for manufacturing.

In my manufacturing-based research (Kletzer, 2001), I found a 10 percentage point to 12 percentage point difference in the likelihood of reemployment between a high school dropout and a high school graduate. The reemployment advantages experienced by college graduates, relative to those without a college degree, are again seen in services. Mean earnings losses are somewhat smaller from services than from manufacturing, and a larger share of displaced services workers experience no earnings loss (or a gain) than we observe for manufacturing. The shares of workers experiencing losses in excess of 15 percent are smaller for services, but still notable, in the range of 25 percent to 30 percent.

Policy implications and conclusions

The notion that trade costs jobs, together with the notion that trade-related displacement is particularly costly, creates a compelling case for targeted adjustment assistance. Neither notion is systematically true, based on the empirical evidence, but both are "true enough" to be persuasive and politically influential. For better or worse, fears of job and earnings losses associated with "trade" are the hook for reforming labor market adjustment policies. Services outsourcing and its link to trade present challenges for the current system of adjustment assistance. Currently, the U.S. Department of Labor (DOL) follows a narrow interpretation of TAA eligibility, denying TAA services to workers displaced from services industries. As discussed in Kletzer and Rosen (2005), the DOL interpretation is that workers must prove they lost a job from a firm that makes a product that is "similar or like an imported good." It seems likely that the trend in services outsourcing, and any associated job loss, will lead to pressure on Congress to extend TAA eligibility criteria to include services workers.

A common ending for papers in this area is the (truthful) acknowledgement that free trade, open markets, economic integration, and dynamic labor markets can facilitate economic growth and convey benefits. But change, and open engagement with the world, does not help everyone. For manufacturing, rising imports are associated with costly job loss. For services, we simply do not yet know. That the numbers may be small or that the association is limited to a particular set of industries does not diminish the significance of the cost to those whose jobs and earnings are directly affected.

NOTES

[1]With apologies to the diversity of views not represented in the paragraphs above.

[2]This section borrows heavily from Kletzer (2001, 2004).

[3]Chapter 5 of Kletzer (2002b) discusses the descriptive and causal aspects of the question.

[4]The appropriateness of changes in import share as an operational measure is highlighted by the language of the Trade Adjustment Assistance Act, whereby certification for eligibility depends on a determination that increased imports have contributed to displacement.

[5]The DWS is administered biennially by the U.S. Bureau of Labor Statistics as a supplement to the *Current Population Survey* (CPS). The first survey was administered in January 1984. The 1984–2002 surveys provide coverage of displacements over 1979–2001. In each survey, adults (aged 20 years and older) in the regular monthly CPS were asked if they had lost a job in the preceding three- or five-year period due to "a plant closing, an employer going out of business, a layoff from which he/she was not recalled, or other similar reasons." If the answer was yes, a series of questions followed concerning the old job and period of joblessness. Other causes of job loss, such as quits or firings are not considered displacements. This categorization is consistent with our common understanding of job displacement: It occurs without personal prejudice in that terminations are related to the operating decisions of the employer and are independent of individual job performance. A key advantage of the DWS is its large-scale, representative nature. As part of the CPS, it draws upon a random sample of 60,000 households, which is weighted to be representative of the U.S. work force. As a result, the surveys yield large numbers of displaced workers from a wide variety of industries.

[6]Table 1 is an updated and revised version of Table 2.1 in Kletzer (2001).

[7]Industries are defined and listed at a three-digit CIC (census industrial classification) level of detail. For readability, some three-digit industries are grouped together under more aggregated (or two-digit) headings.

[8]My judgments moved several industries into the high-import category: Motor vehicles, tires and inner tubes, blast furnaces, other primary metals, and cycles and miscellaneous transport all have a history of import competition, are large and visible employers, but experienced increases in import share just below the top quartile cutoff.

[9]See Kletzer (2002b) for a more detailed discussion of manufacturing and trade over this period.

[10]The literature is summarized in Kletzer (2002b).

[11]This number will be different from the often-cited declines in employment in manufacturing. Manufacturing employment decline is a net loss in employment, the difference between employment gains (through new hires, rehires, and recalls) and reductions in employment (through quits, layoffs, displacements, retirements, and deaths). See details in Kletzer (2002b).

[12]See Scott (2001) for an alternative view on the scale of job loss.

[13]See Kletzer and Rosen (2005) for a detailed discussion.

[14]These stylized facts are presented in more detail in Kletzer (2004).

[15]The shift in job loss from manufacturing and production workers toward service and white-collar (non-production) workers has been in evidence since the recession of the early 1990s. At that time, concerns about downsizing and re-engineering were coincident with a rise in the share of white-collar and service sector job loss (see Podgursky, 1992, Farber, 1993, Gardner, 1993, and Kletzer, 1998).

[16]It is still the case that less-educated workers have the highest rates of job loss overall. In the 2000–01 downturn, workers with a high school diploma or less accounted for 38 percent of non-manufacturing job losses. On average, these low-skilled workers earned under $20,000 per year in their pre-displacement jobs (estimates from the *Displaced Worker Surveys*, 1984–2002).

[17]The literature on services outsourcing is expanding rapidly. Recent contributions include: Amiti and Wei (2004); Arora and Gambardella (2004); Bardhan and Kroll (2003): Bhagwati, Panagariya, and Srinivasan (2004); Brainard and Litan (2004); Bronfenbrenner and Luce (2004); Samuelson (2004); and Schultze (2004).

REFERENCES

Amiti, Mary, and Shang-Jin Wei, 2004, "Fear of service outsourcing: Is it justified?," International Monetary Fund, working paper, No. WP/04/186, October.

Arora, Ashish, and Alfonso Gambardella, 2004, "The globalization of the software industry: Perspectives and opportunities for developed and developing countries," National Bureau of Economic Research, working paper, No. 10538, June.

Bardhan, Ashok Deo, and Cynthia A. Kroll, 2003, "The new wave of outsourcing," University of California, Berkeley, Fisher Center for Real Estate and Urban Economics, working paper, Fall.

Bhagwati, Jagdish, Arvind Panagariya, and T. N. Srinivasan, 2004, "The muddles over outsourcing," *Journal of Economic Perspectives*, Vol. 18, No. 4, pp. 93–114.

Brainard, Lael, and Robert E. Litan, 2004, "Offshoring service jobs: Bane or boon—And what to do?," Brookings Institution, policy brief, No. 132, April.

Bronfenbrenner, Kate, and Stephanie Luce, 2004, "The changing nature of corporate global restructuring: The impact of production shifts on jobs in the U.S., China, and around the globe," U.S.–China Economic and Security Review Commission, report, October.

Farber, Henry S., 1993, "The incidence and costs of job loss: 1982–01," *Brookings Papers: Microeconomics*, pp. 73–132.

Gardner, Jennifer, 1993, "Recession swells count of displaced workers," *Monthly Labor Review*, Vol. 116, No. 6, June, pp. 14–23.

Grubel, H. G., and P. J. Lloyd, 1975, *Intra-Industry Trade: The Theory and Measurement of International Trade in Differentiated Products*, London: Macmillan.

Jensen, J. Bradford, and Lori G. Kletzer, 2004, "Tradable services: Understanding the size and scope of services outsourcing and its impact on American workers," University of California, Santa Cruz, working paper.

Kletzer, Lori G., 2004, "Trade-related job loss and wage insurance: A synthetic review," *Review of International Economics*, Vol. 12, No. 5, November, pp. 724–748.

_____, 2002a, "Globalization and American job loss: Public policy to help workers," *Perspectives on Work*, Industrial Relations Research Association, Vol. 6, No. 1, June, pp. 28–30.

_____, 2002b, *Imports, Exports, and Jobs: What Does Trade Mean for Employment and Job Loss?*, Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.

_____, 2001, *Job Loss from Imports: Measuring the Costs*, Washington, DC: Institute for International Economics.

_____, 1998, "Job displacement," *Journal of Economic Perspectives*, Vol. 12, No. 1, pp. 115–136.

Kletzer, Lori G., and Howard Rosen, 2005, "Easing the adjustment burden on U.S. workers," in *The United States and the World Economy: Foreign Economic Policy for the Next Decade*, C. F. Bergsten (ed.), Institute for International Economics, January 2005, pp. 313–342.

McCarthy, John, 2002, "3.3 million U.S. services jobs to go offshore," Forrester Research, brief, November.

Podgursky, Michael, 1992, "The industrial structure of job displacement," *Monthly Labor Review*, Vol. 115, No. 9, September, pp. 17–25.

Samuelson, Paul A., 2004, "Where Ricardo and Mill rebut and confirm arguments of mainstream economists supporting globalization," *Journal of Economic Perspectives*, Vol. 18, No. 3, pp. 135–146.

Scheve, Kenneth F., and Matthew J. Slaughter, 2001, *Globalization and the Perceptions of American Workers*, Washington, DC: Institute for International Economics.

Schultze, Charles L., 2004, "Offshoring, import competition, and the jobless recovery," Brookings Institution, policy brief, No. 136, August.

Scott, Robert E., 2001, "NAFTA's hidden costs: Trade agreement results in job losses, growing inequality, and wage suppression for the United States," *NAFTA at seven: Its impact on workers in all three nations*, Economic Policy Institute, briefing paper, April.