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A Synthetic Review

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A Synthetic Review

Abstract

This paper seeks to promote further integration of empirical and theoretical discussions of trade and worker adjustment. From my recent studies of the costs of job loss, I develop a set of stylized facts of trade-related job loss, with a focus on worker characteristics and labor market consequences. These stylized facts are relevant to any (credible) model of trade liberalization and adjustment costs. I then discuss the basic ideas of wage insurance and summarize the little that is known about how a program might work if implemented in the U.S. A final section provides a list of issues for a model of trade that will be consistent with the empirical stylized facts, sets out questions for future research and concludes.

Most, if not all, papers in the area of "Globalization and Labor Markets" contain at least several sentences noting the large and positive net benefits of free trade, and the corresponding ability of free trade's winners to compensate the losers. The presumption that the losers can be compensated (at least partially if not fully) is strong, and often seems to serve as adequate justification for promoting policies that advance free trade. These presumptions have long been problematic in policy and political contexts, and are steadily being challenged in the academic literature.

One key problem for the argument that the gains from trade are always large enough to (fully) compensate the losers (without exhausting the benefits) is that presumptions of an ability to compensate have only weakly translated into a record of compensation policies and programs. The record of trade liberalizations undertaken by the U.S. is not matched by a record of policies to compensate workers for their trade-related job loss. The creation of, and reforms to, Trade Adjustment Assistance (TAA), has some parallels to rounds of trade liberalization, but the important dimension is in results, and on this score there is little sense that TAA brings to workers any sense of adequate compensation.[1]

The highly visible nature of job loss, along with 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. Yet opinions about trade liberalization do become more favorable when it is linked to worker adjustment programs (see Scheve and Slaughter, 2001). The public sense remains strong that fairness dictates compensation for workers affected by trade.

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[1] TAA has held center stage in the limited mix of worker adjustment policies since the mid-1970s. Overlapping with the evaluation literature, a number of papers consider the evidence on TAA and training for displaced workers. See Decker and Corson (1995) and Leigh (1990).

Over the past 15 years, at first quietly and then with more momentum since 2000, wage insurance has emerged as a potential additional adjustment policy tool, particularly in the context of free trade.[2] The relevant papers here are Lawrence and Litan (1986), Baily, Burtless, and Litan (1993), Jacobson, LaLonde and Sullivan (1993), Jacobson (1998), Burtless, Lawrence, Litan and Shapiro (1998), Kletzer and Litan (2001).[3] In the U.S. policy arena, the idea of wage insurance has reached a level of prominence perhaps surprising for a largely "academic" idea.[4] Due in part to the success of the globalization backlash in highlighting American job loss, the leadership of the U.S. Senate tied legislation granted presidential trade-promotion authority to an amendment expanding and reauthorizing TAA. One of the TAA program expansions contained in the Trade Act of 2002 is a limited two-year demonstration program of wage insurance.[5]

Over the recent past, the distance between adjustment discussions of the "policy" literature and those of mainstream academic international trade has narrowed. The academic literature on adjustment costs and compensation schemes is distinguished by a number of theoretical articles.[6] Within the traditional full employment model of trade Dixit and Norman (1980, 1986) proposed a scheme of commodity taxation to compensate the losers. With this compensation scheme in place, trade liberalization leads to a Pareto improvement. One clear shortcoming of the traditional full employment trade model is its inability to address the central issue of how to compensate unemployed workers for their job loss. In this spirit, Brecher and

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[2] As noted below, wage insurance also goes by the names wage subsidy (Davidson and Matusz (2002)) and conditional tapered assistance (Brander and Spencer (1994)).

[3] Wage insurance gained visibility in November 2000 when recommended by the U.S. Trade Deficit Review Commission (2000).

[4] See *Wall St. Journal*, August 31, 2001, pg. A1 and *Wall St. Journal*, May 13, 2002, pg. A4.

[5] The House and Senate approved the granting of presidential trade-promotion authority, with the TAA expansion, just before their summer recess, and President Bush signed the bill in early August. The pilot wage insurance program was retained, along with the establishment of a refundable tax credit, payable in advance, to cover 65 percent of the cost of health insurance for TAA eligible workers. See the *Washington Post*, August 7, 2002, pg. A06.

[6] The discussion here of the theoretical literature is brief. Other early contributions are contained in Bhagwati (1982).

Choudhri (1994) show that a Dixit-Norman commodity tax scheme may not work in the presence of unemployment because fully compensating the losers may require using all the gains from trade. Feenstra and Lewis (1994) showed that imperfectly mobile factors create similar problems for a commodity tax scheme. Importantly from a labor market policy perspective, Feenstra and Lewis go on to show that commodity taxes paired with trade adjustment assistance (predicated on subsidizing workers moving across industries) can lead to Pareto gains from trade. Brander and Spencer (1994) consider several designs for trade adjustment assistance from the perspective of efficiency costs and distributional objectives. One of the designs considered is a version of wage insurance, as described by Lawrence and Litan (1986), that Brander and Spencer label "tapered assistance," where assistance is an increasing function of the wage loss. In their most basic case (non-market opportunities known and uniform across individuals), Brander and Spencer find that unconditional tapered assistance, offered to workers taking new jobs as well as workers who do not (using the value of leisure as a wage-equivalent), achieves full efficiency and dominates other programs from a distributional point of view. They go on to note that this result cannot be generalized beyond the basic model. Moving fully to a model of trade where workers seeking employment must first complete costly training and job search, two papers by Davidson and Matusz (2001, 2002) analyze worker adjustment costs and policy alternatives in a general equilibrium framework with trade liberalization. In the 2002 paper, the main point is to consider various compensation policies, mostly prominently a wage subsidy/wage insurance scheme. Given the current policy prominence of this idea, these developments are welcome. As the TAA expansions introduced in the Trade Act of 2002 are implemented, the academic literature can help raise questions for evaluation and assessment.[7]

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[7] This discussion of the theoretical literature is exhaustive. Other early contributions are contained in Bhagwati (1982).

This paper seeks to promote further integration of empirical and theoretical discussions of trade and worker adjustment. From my recent studies of the costs of job loss, I develop a set of stylized facts of trade-related job loss, with a focus on worker characteristics and labor market consequences. These stylized facts are relevant to any (credible) model of trade liberalization and adjustment costs. I then discuss the basic ideas of wage insurance and summarize the little that is known about how a program might work if implemented in the U.S. A final section provides a list of issues for a model of trade that will be consistent with the empirical stylized facts, sets out questions for future research and concludes.

2. What we know about imports and job loss[8]

"Trade-related job loss" is a familiar, if ambiguously defined, phrase. As commonly understood and implemented in policy, trade-related job loss means 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 may appear precise, but many operational ambiguities arise. In addition, within academic circles there are further complications that arise from the complexity of empirically capturing the causal nature of the "trade and employment change" question (see Kletzer (2002b) for details). At a minimum, it is important to state 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. Those caveats in place, it is important to acknowledge that a notion of trade-displacement exists in public discourse. A sensible approach for policy-relevant analysis is to try to define the term in a way that is grounded in (some) economic analysis. In what follows, I seek

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[8] This section borrows heavily from Kletzer (2001).

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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.[9]

In Kletzer (2001) I classified manufacturing industries by their degree of import competition in the following way: "High" import-competing industries, those in the top quartile of a ranking of import share changes during the period 1979-94; "medium" import-competing for industries in the middle two quartiles; and low for the bottom quartile. The top quartile contains industries with an increase in import share exceeding 13 percentage points. By applying this import-competition definition to the Displaced Worker Surveys (DWSs), I obtained samples of workers who, by the industry of the lost job, are "trade-displaced" workers in the sense of being displaced from industries facing increased import competition.[10]

Table 1 lists the high import-competing (or import-sensitive) industries. These industries are the most likely to produce import-competing job loss, and we can usefully consider workers displaced from these industries to be import-competing displaced workers. At this point, these are the workers who face adjusting to new labor market circumstances. Industries are listed in table 1 in order of estimated total number of workers displaced during the period 1979-99, from largest to smallest.[11]

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.[12] The high-import group

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[9] Chapter 5 of Kletzer (2002b) discusses the descriptive and causal aspects of the question.
[10] The Displaced Worker Surveys are biennial supplements to the Current Population Survey.
[11] Industries are defined and listed at a 3-digit CIC level of detail. For readability, some 3-digit industries are grouped together under more aggregated (or 2-digit) headings.
[12] One industry, aircraft and parts, was moved from the high-import to the medium-import group, despite its increase in import share, because it had little history of import competition (on the basis of a low level of import share in the mid-1970s).

contains the handful of industries commonly considered to be import competing: apparel, footwear, knitting mills, leather products, textiles, blast furnaces, radio and television, and toys and sporting goods. As I report in more detail in the book, my criteria for import-competition is robust. The top-ten industries accounting for NAFTA-TAA certifications over the period 1994-2000 are all in the high import-competing group.[13]

Using a somewhat conservative count of displaced workers, I estimate that 16.8 million workers lost jobs in all of manufacturing during the period 1979-99, about 37 percent of the total nonagricultural job loss of 44.9 million.[14] During this period, manufacturing represented, typically, about 18 percent of total nonagricultural employment. The high import-competing group accounted for 38.4 percent of manufacturing displacement, at 6.45 million workers. During the 1979-99 period, these industries accounted for just under 30 percent of manufacturing employment. In a larger context, averaged over the period 1979-99, the high import-competing manufacturing industries accounted for 5.2 percent of total nonagricultural employment. By my measures, job losses from these industries accounted for 14.2 percent of nonagricultural displacement.

More recently and more narrowly, I examined the extent of job loss related to NAFTA and imports, and concluded that NAFTA-import related job loss accounted for 24-27 percent of manufacturing job loss over the 1993-99 period. For the economy overall, NAFTA-import related job losses are more modest, accounting for 10.7 percent of total job loss.[15]

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[13] The sole exception is Sawmills, a top-ten NAFTA-TAA industry, but a medium import-competing industry under my definition.

[14] 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).

[15] See Kletzer (2002a).

These job loss numbers will strike some as compelling, and others as less so. There has been much debate over the number of workers or jobs affected by trade (see Scott (2001)). To understand adjustment costs, it is important to understand workers – who they are and how they are affected by import-related job loss. Briefly, I will summarize what is known about the characteristics of displaced workers and basic post-displacement outcomes.

Table 2 reports a set of worker characteristics. Compared to workers displaced from other sectors of the economy, such as wholesale and retail trade, utilities, or services, 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 (just less than one-half of manufacturing displaced are lower-skilled blue collar workers- fabricators, laborers, etc.). Twenty-one percent of manufacturing displaced are high school dropouts, compared to 11.9 percent of non-manufacturing displaced. This difference widened in the 1990s as compared to the 1980s: the high school dropout share fell throughout the economy, but more so outside of manufacturing. Manufacturing workers are less likely to be college graduates: over 1979-99, workers with a college degree or higher comprised about 14 percent of manufacturing displaced and 22 percent of non-manufacturing displaced.

Import-competing workers are similar to other displaced manufacturing workers, with respect to age, educational attainment and job tenure (see table 3). Import-competing workers are very slightly older (a larger share are 45-54 years of age). The most striking difference between import-competing displaced workers and other displaced manufacturing workers is the degree to which import-competing industries employ and displace women. Women account for 45 percent of import-sensitive displaced workers, compared to 37 percent of overall manufacturing displaced. Some industries stand out: women account for 80 percent of the displaced from

apparel, 66 percent of footwear displaced, 76 percent of the displaced from Knitting Mills (part of the textiles industry). Women dominate the group of displaced workers from these import-competing industries as a result of their high representation in employment.

Turning to outcomes, about 65 percent of manufacturing displaced workers were re-employed at their survey date, as compared to 69 percent of non-manufacturing displaced workers. This difference, 4.3 percentage points, is not large, but it is statistically significant. The likelihood of re-employment was markedly higher in the 1990s than in the 1980s. Import-competing displaced workers are a little less likely to be reemployed (63.4 percent were re-employed at their survey date) than other displaced manufacturing workers (65.8 percent re-employed). Particularly for the high import-competing group, re-employment was more difficult in the 1980s with a lower rate of 62.3 percent, than it was in the 1990s when 65.4 percent of workers were re-employed on average (see table 4).

Among the re-employed, high import-competing displaced workers have large average earnings losses, about 13 percent at the mean. This average earnings loss is significantly different from workers displaced from industries with the least exposure to imports, but not the medium import group. These large average losses mask considerable heterogeneity: 36 percent of import-competing displaced workers report earning the same or more post-displacement as they earned before the job loss, and 25 percent reported earnings losses of 30 percent or more. This spread is very similar to manufacturing as a whole.

Drawing these elements together, there are few striking differences between import-competing displaced workers and other manufacturing workers, based on average characteristics. It is useful to look beyond the averages and at the distribution of these characteristics. Table 5

reports on a set of characteristics, expanded from tables 3 and 4, just for the high import group of industries and workers.

High import competition industries vary from the low wage (Apparel, Footwear, Knitting Mills, Leather Products) to the high-wage (Computers, Blast furnaces, Tires and Inner tubes, Construction and Material Moving Machines, Motor Vehicles). Across the board, the lower-wage industries employ and displace large shares (and often large numbers) of women. A few industries stand out: women account for 79 percent of displaced workers from Apparel (compared with their 82 percent employment share in 1978). In Footwear, women represent 66 percent of displaced workers, from a 70 percent 1978 employment share. In Leather Products, women were 73 percent of the displaced, and 69 percent of 1978 employment. From Knitting mills, women account for 80 percent of displaced workers. Understanding gender differences in the incidence and consequences of import-competing job loss is a subject for another study. What is clear here is that the burden of import-competing job loss falls on women, in large part because traditionally women have been employed in these high import-competing industries.[16]

Lower educational attainment also describes these lower-wage industries. High school dropouts comprise 25 to 50 percent of the displaced from these industries. A few industries stand out: Textiles, Apparel, Leather Products, Footwear. The fraction of high school dropouts is notably lower in the higher-wage industries, in the range of 7 to 10 percent. We expect our traditional import-competing industries to be relatively low-skill, and their displaced workers face readjustment starting from modest levels of formal schooling. Their on-the-job skills are more difficult to observe, but formal schooling and on-the-job training are known to be positively correlated. We should expect these workers to face difficult readjustments.

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[16] Lower average job tenure for women and inverse seniority-based layoff rules, along with part-time status, may account, in part, for women's high incidence of displacement.

Many high import-competing displaced workers were well-established in their jobs. Long tenures clearly characterize the higher-wage industries. Half of the displaced from Tires and Inner tubes reported being on the job ten years or more before the job loss. Even in the lower-wage industries, sizeable shares (around 20 percent) of displaced workers had been on the job at least ten years. Just being on a job for 10 years can mean rusty job search skills and a general lack of information about current labor market conditions.

For workers with little formal schooling and long tenures, job loss can be a costly experience. For the high import-competing group as a whole, the likelihood of re-employment is less than two-thirds (at 63.5 percent), and it varies from a low of 38 percent for Leather Products to a high of 83 percent for Photographic Equipment. Almost all, 97 percent, of these workers were employed full-time before displacement, making weak labor force attachment, from the worker side, an unlikely cause for the low re-employment rates.

For most high import-competing workers, the time needed to find a new job is within the usual 26-week period of eligibility for unemployment compensation. Half of these workers had unemployment spells of 8 weeks or less. Interestingly, 27 percent of workers were unemployed for less than one week (this group is included in the half with spells of less than one week). Yet a full quarter of workers were unemployed for more than 26 weeks (six months), where standard unemployment compensation is exhausted. There is a wide variation in the incidence of long spells of unemployment (jobless for six months or longer) across the high import-competing industries. In some industries, relatively few workers were jobless six months or more (10 percent in Other Rubber Products and Leather Tanning and Finishing) and in others long periods of joblessness was a more likely experience (36.7 percent in Blast furnaces, 32.9 percent in Footwear, 31.5 percent in Tires and Inner Tubes).

The mean earnings loss was 13.2 percent. The range of earnings losses is striking across the high import-competing industries. Mean earnings losses from two of the high-wage industries were greater than 45 percent (Blast furnaces, Tires and Inner tubes). Mean earnings losses from other high-wage industries were notably smaller; e.g. Motor Vehicles at 23 percent and Photographic equipment at 15 percent. Lower-wage industries have lower mean and median earnings losses, and we expect some of that effect statistically (i.e., high-earning workers have more earnings to "lose" as they drop down in the earnings distribution than do lower-earning workers). High-wage industries have a greater share of their workers reporting large, greater than 30 percent, earnings losses. With their predominance in lower-wage industries, women have slightly smaller mean earnings losses than men (12 percent compared to 15 percent), a difference that is not statistically significant.

Simple statistical models of re-employment and earnings losses can be used to understand the variation in outcomes across workers. Tables 6 and 7 report estimates from a logit analysis of survey-date employment, first for the full sample (table 6) and then for the manufacturing subsample (table 7).[17]

Certain characteristics stand out:

- Younger workers are more likely to be re-employed. Workers who are 25-34 years of age or 35-44 years of age are about 11 percentage points more likely to be re-employed than workers who were 45 years of age or older at the time of displacement.
- Education matters too. Compared to high school dropouts, workers with a college degree (or higher) are 25 percentage points more likely to be re-employed, high school graduates 9.4 percentage points more likely and workers with some college experience 11 percentage points more likely to be re-employed.
- The overall health of the economy and the labor market matters a great deal. A worker displaced from nondurable goods manufacturing in the strong economy of the mid-to-late 1990s (1993 to 1999), 45 years of age or older, a high school dropout, more than 10 years tenure on the old job, full-time at the time of displacement, non-minority and married has a predicted chance of re-employment of 53.7 percent. The same worker, displaced during the deep 1980s recession (1981-83), had a 34.5 percent chance of re-

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[17] Tables 6 and 7 report marginal effects. Coefficient estimates are available on request.

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employment, more than one-third (35.7 percent) lower. While it may not be enough (particularly for older, less educated and more tenured workers), a strong labor market clearly provides the necessary setting for displaced workers to find the next job.

As an illustrative example, take a representative import-competing displaced worker (displaced from nondurable goods manufacturing in the mid-to-late 1990s, 45 years of age or older, a high school dropout, more than 10 years tenure on the old job, full-time at the time of displacement, non-minority and married). This worker has a predicted likelihood of re-employment of 54 percent. If that worker was younger, say 25 to 44 years old instead of 45 years or older, the chance of re-employment rises to nearly 66 percent. As a high school dropout, the chance of re-employment is about 65 percent. For a college graduate, re-employment jumps to 78.5 percent. These differences are a striking illustration of the importance of education (which can be changed) and age (which cannot) in getting the next job. And the effect of more formal schooling is stronger for younger workers than for older workers.

My analysis finds that losing a job and having to find another can be difficult for many workers. The difficulties may not end with reemployment. If the new job pays less than the old one, the costs of job loss can continue for years. For a sample of Pennsylvania workers, Jacobson, LaLonde, and Sullivan (1993) found earnings losses equal to approximately 25 percent of predisplacement earnings, five or six years after job loss.

An analysis of reemployment earnings is more limited using the Displaced Worker Surveys, where earnings are measured as weekly earnings, and the available comparison is between weekly earnings at the time of displacement and, if re-employed, weekly earnings at the time of the survey. Earnings losses can be measured by comparing earnings on the old job to those on the new job. This measure will "miss" earnings growth that would have occurred on the old job, in the absence of displacement. Manufacturing displaced workers experience large

earnings losses on average, 12 percent at the mean, compared to a loss of just under 4 percent for non-manufacturing displaced workers.

Among the re-employed, import-competing displaced workers experience sizeable average weekly earnings losses of about 13 percent. This large average loss masks considerable variation: one-third of import-competing displaced workers report earning the same or more on their new job as they earned on the old job, and one-quarter reported earnings losses of 30 percent or more. This average and distribution is very similar to what I find for manufacturing workers as a group. Older, less educated, lower-skilled production workers, with established tenures on the old job, are more likely to experience earnings losses in excess of 30 percent.

Straightforward OLS estimates of earnings loss specifications help clarify an emerging profile of workers who experience costly job losses (see Kletzer (2001)). Earnings losses rise with previous job tenure and age and are smaller for more educated workers. Among manufacturing workers, high import competing workers do not have significantly larger earnings losses than the less import competing group.

Re-employment Sector

The pattern of re-employment by industrial sector can help us understand the range of outcomes available to displaced workers. Some basic knowledge of reemployment sector is also applicable to a larger question of the impact of free trade on employment and wages. With shifts in comparative advantage, how is labor reallocated across industries?

Table 8 presents detailed information on reemployment outcomes by industrial sector.[18] A few general observations stand out. First, contrary to common perceptions, not all displaced manufacturing workers are re-employed at McDonalds. Overall, just 10 percent of re-employed manufacturing workers are in Retail trade (McDonalds, as an eating and drinking establishment, is in the Retail trade sector). High import-competing displaced workers are no more likely than any other manufacturing worker to be re-employed in Retail trade. In contrast, 21 percent of non-manufacturing displaced workers are re-employed in Retail Trade.

Second, there is considerable re-employment within manufacturing. High import competing displaced workers, 100 percent of whom were displaced from nondurable goods and durable goods manufacturing, are being re-employed in manufacturing, at a level of about one-half. In other words, considering just those workers re-employed when surveyed (about two-thirds of those displaced), full one-half of import-competing displaced workers are re-employed back in manufacturing. Incorporating the .634 re-employment rate, we note that about one-third (.329) of all high import-competing displaced workers return to manufacturing after their job loss. Another one-third are re-employed in the non-manufacturing sectors and the remaining one-third are not re-employed.

Workers who return to their old sector may retain the value of some specific skills, keep earning union rents and maintain their position in internal job ladders. All these factors are expected to mitigate earnings losses, and they do, as can be seen in Table 8. For manufacturing workers, regaining employment in manufacturing greatly reduces earnings losses. Mean

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[18]The table is a very basic "re-employment matrix," reporting the industrial sector from which workers were displaced (categorized by the level of import-competition of their old industry) and the industrial sector of re-employment. The table contains four main rows, labelled "high," "medium," "low" (for the import competing nature of the manufacturing industries) and "Non-manufacturing" for the remaining private non-manufacturing sectors of the economy (Utilities, Wholesale and Retail Trade, Services). This last row serves as a comparison group for manufacturing. Workers are displaced from one of these four big rows. They are re-employed in one of twelve columns, where columns designate new industrial sectors. Within each cell, defined as a main row intersecting with a column, five measures are reported.

earnings losses are smallest for workers re-employed in durable goods (at 4.5 percent), and next smallest in nondurable goods (5.8 percent). Median earnings losses are even smaller, at no loss for durable goods and 3.7 percent for nondurable goods.

While earnings losses are small for the "average" high import-competing worker re-employed in manufacturing, there is still considerable variation in earnings changes. About one-fifth of these workers suffer earnings losses in excess of 30 percent (see table 8). Even within manufacturing, skilled (but older) workers may find themselves unfamiliar with standards, processes, and procedures instituted by manufacturing firms since the mid-1980s. That 20 percent of workers with very large earnings losses is, however, considerably smaller than the corresponding shares for workers re-employed in other sectors.

Displaced manufacturing workers who gain re-employment in manufacturing also experience the shortest median weeks of joblessness (6-8 weeks), as compared to workers re-employed elsewhere. This may be a result of searching first in familiar labor markets in manufacturing, and turning to less familiar markets and networks only after some period of unsuccessful search. These spells of joblessness are well-within the standard period of eligibility for unemployment compensation (at 26 weeks).

Wholesale and Retail trade, Finance, and Services provide about 35 percent of import-competing displaced worker re-employment. Mean earnings changes are highly variable, ranging from a 6 percent loss in Finance, insurance and real estate to 34 percent loss in Retail trade. A large share of such workers (25 to 40 percent) report earnings losses exceeding 30 percent. Retail trade and business and personal services together account for nearly 20 percent of import-competing displaced re-employment, and mean earnings losses are large, on the order of 22 percent to 33 percent. Given the prevalence of part-time work in Wholesale and Retail Trade

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and Services, a switch from full-time to part-time may help explain the large re-employment earnings losses.

These patterns of re-employment are both expected and perhaps unexpected. The patterns show both considerable reallocation along with some maintenance of employment in "old" industries. They suggest a partial reallocation of labor, one that may be consistent with a short (1-3 year) horizon. It is not at all clear that a complete reallocation should be expected, given the presence of specific factors. The "old" manufacturing sectors may be engaged in a form of long-term employment decline, but that process is not uniform across firms or industries. Production continues, normal turnover continues, some employment opportunities remain open. For workers with specific skills, re-establishing a spot in manufacturing makes sense; it minimizes earnings losses. It also suggest avenues for re-employment efforts that do not involve formal (re)training. At the same time, the pattern of re-employment, particularly for manufacturing workers, shows that when workers are reallocated, it can be at considerable cost.

These results also suggest that a uniform manufacturing-to-services view of labor reallocation is simplistic. Rather than thinking that entire industries are in decline, it is more realistic to think that some firms/activities in an industry decline while other firms/activities start up or expand.

3. Stylized facts of import-competing job loss

From the summary discussion above, we can draw out a set of stylized facts about import-competing job loss. These stylized facts can provide some useful benchmarks for models

of trade and trade liberalization with adjustment costs. Proposed policies for addressing

adjustment costs should have some consistency with these stylized facts.

1. Import-related job loss is a sizeable share of U.S. manufacturing job loss, and a much smaller share of economy-wide job loss.

2. Similar to manufacturing workers displaced for other reasons, import-competing displaced workers are older, less formally educated, and more tenured than displaced non-manufacturing workers. Generally, these are not the characteristics of workers who succeed in training programs.

3. The probability of re-employment is low for import-competing displaced workers (relative to non-manufacturing workers), with sizeable earnings losses on average.

4. Import competition is associated with low re-employment rates because the workers vulnerable to rising import job loss experience difficulty gaining re-employment, based on their individual characteristics. The characteristics that limit the reemployment of import-competing displaced workers are the same characteristics that limit the re-employment of all displaced workers: low educational attainment; advancing age, high tenure, minority status; marital status. Workers with high tenure and/or low skill may confront serious skill-related adjustment problems, along with having rusty job search skills. Facing the loss of a wage premium, UI benefits will be relatively generous, allowing slower job search.

5. For most workers, the costs of job loss occur as re-employment earnings losses. Less formally educated workers experience the greatest difficulty maintaining earnings. More generally, re-employment earnings losses rise with age, fall with education, rise with (old) job tenure. Workers with these characteristics appear to need the most help. Wage insurance could be considered (partial) compensation for lost specific skills.

6. Re-employment 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 by re-employment within the narrow set of "old" industries, and even more so by reemployment in the old detailed industry. Re-employment in services is associated with the largest earnings losses. There may be little retraining associated with these moves. Wage insurance has potential for reducing these losses.

4. Wage insurance: compensation or a fix for the unemployment insurance system?

In recent discussions about addressing some of the costs of trade-related job loss, wage

insurance has re-surfaced as a mechanism for (partially) compensating workers for their re-

employment earnings losses. With the range of earnings changes found in the Displaced Worker

Surveys, the costs of such a program are reasonable in dollar terms and a very small fraction of the estimated benefits for the U.S. from freer trade (see Kletzer and Litan 2001).

How would a wage insurance program work?

Wage insurance is a supplemental benefit program designed to cover some of the earnings losses following displacement, in a way that stimulates re-employment. As proposed in Kletzer and Litan (2001), eligible workers would receive some fraction, perhaps half, of their weekly earnings loss. The fraction could vary by age and tenure of the worker. Payments begin only when a worker has a new (full-time) job and could continue for up to two years following the initial job loss, as long as the new job paid less than the old job. Annual payments could be capped at $10,000/year. By "topping up" earnings if the new job pays less than the old, and only for a specified period, the program offers re-employment incentives, in contrast to the incentives introduced by UI and training subsidies. With the re-employment incentive, the program can also be seen from an active labor market policy perspective, in the spirit of re-employment bonuses.[19]

For example, if an eligible high import competing worker made $600 per week on the old full time job and found a new full time job paying $520 (13 percent less), the supplemental payment would be $40/week, for a total weekly earnings of $560.[20] At a 30 percent earnings loss, the new job would pay $420/week, the payment would be $90, for a weekly earnings of $510. Here, the supplement could encourage a worker to take a job paying significantly less than the old job, yet with the supplement, the earnings loss is reduced by half.

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[19] Re-employment bonuses are lump-sum payments to unemployed workers who find jobs within a specified limited time frame. Four randomized experiments have tested the idea, in Illinois, New Jersey, Washington State, and Pennsylvania. See Decker and O'Leary (1994).

[20] $600/week is the mean earnings for high import competing displaced workers on their old job (in 1999 $), and the mean earnings change for this group was a loss 13 percent.

The re-employment incentive in wage insurance is seen clearly when contrasted with UI benefits. Generally, payments under UI are limited, replacing a little less than 50 percent of the average worker's previous earnings. In 1999, average weekly earnings for a production worker in wage and salary employment was $457, and the average weekly unemployment benefit was $212.[21] Summarizing the numbers above, and adding the UI comparison:

Old job	New job	New job + supplement	UI benefit
$600	$520	$560	$300
$600	$420	$510	$300
$600	$300	$450	$300

Wage insurance raises the return to search, and more so for workers with greater re-employment losses. A higher wage insurance replacement rate further increases the return to job search, while it reduces the worker's incentive to search for a (different) higher-paying job (but only during the eligibility period). If the supplement interval is fixed and limited, say to two years, the present value of the supplement declines with the duration of unemployment and poses an incentive for a quicker return to work. There is a "winners" theme here, as workers who have difficulty finding a job (particularly if required to be full-time) will receive a smaller supplement than workers with short unemployment spells.

High-tenure, lower-skill manufacturing workers will find wage insurance to have greatest value. These workers are visible and have clout. They are not high-wage workers; they are earning a wage premium over their alternative. Wage insurance is more valuable to these workers than it is to lower-wage workers. Lower-wage displaced workers will find it relatively easier to find an equivalent job and therefore will be less likely to experience large earnings losses. This introduces a potentially important distributional issue.

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[21] Economic Report of the President (January 2001), Tables B-45 and B-47.

Restricting eligibility to full-time employment raises some questions. Earnings losses are a product of both changes in wages and changes in hours. Either wages or hours, or both, could be lower on the new job. Particularly for lower-skill workers, most readily available jobs will be part-time, as well as at low wage rates. Limit benefits to those who find one of a limited supply of full-time jobs will end up awarding the "winners." On the other hand, if the earnings supplement is applied to earnings losses arising from changes in hours worked, effective pay on new part-time jobs could be quite high. For example, as discussed by Parsons (2000), if a particular worker's earnings loss arises solely from working part-time on the new job, that worker will have an opportunity to work half the hours (as compared to the old job) at three-quarters pay. This level of subsidy could induce a sizeable shift to part-time work.

In this sense, wage insurance has some clear roots in the literature of optimal UI policy design. Moral hazard questions are well-recognized in the UI literature, in particular a UI-recipient worker's reduced incentive to leave unemployment due to a reduction in the net return to securing a job. This moral hazard issue broadly explains why UI benefits are only partial compensation for lost earnings and why the duration of benefit eligibility is limited (usually to 26 weeks). Baily (1978) proposed a front-loaded redundancy payment (equal to expected earnings loss), to be followed by a lower payout for incremental weeks of unemployment. This scheme separates compensation for job loss from unemployment insurance and avoids creating incentives for extending a spell of unemployment. See Parsons (2000) for a more complete discussion.

The reemployment incentive aspect of wage insurance gives rise to (some of) the standard set of questions. Will an earnings supplement encourage workers to look sooner or more intensely? Will it broaden the range of job offers considered? Will the supplement lower

reservation wages, easing consideration of entry-level jobs in expanding industries, jobs that provide training in new skills and prospects for advancement? In short, will wage insurance lead to shorter unemployment durations, increased earnings and changes in UI benefit receipt?

The focus on re-employment incentives stands out as a contrast to the longer-term compensatory wage subsidies discussed in Davidson and Matusz (2002). Structuring a program with a relatively short eligibility period, starting with the date of job loss, creates the incentive and addresses UI concerns, yet limits the compensatory nature of the program. Not enough is known about the long-term nature of displaced worker earnings losses. What is known however, is that these earnings losses exist five to six years after job loss, not just at two years (see Jacobson, LaLonde, and Sullivan (1993)). This co-mingling of goals within wage insurance (compensation versus unemployment insurance fix) has not been carefully considered to date.

Evidence from a wage insurance trial

The Earnings Supplement Project (ESP) was a Canadian multi-site demonstration program to test wage insurance for a group of displaced workers (and also for a different group of repeat users of unemployment insurance). Human Resources Development Canada (HRDC) funded the project, and the demonstration was conducted by the Social Research and Demonstration Corporation (SRDC).[22] Shortening the re-employment process was the goal of the supplement trial and the program evaluation reflected this intent. The supplement was seen as a possible additional tool in an active labor market policy. From Bloom (1999, pg. ES-1):

> The primary goal of the supplement for displaced workers was to shorten their often long and painful re-employment process and to provide them with a source of income in a form that promoted employment. It was hoped that doing so would help to compensate displaced workers for the losses they incurred due to economic change. In

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[22] My discussion here is taken from Bloom (1997, 1999).

addition, it was hoped that, by encouraging re-employment, the supplement would reduce the cost of unemployment benefits.

The ESP used a randomized experiment research design to measure the effect of the supplement on employment, earnings, and UI benefit receipt. Eligible applicants were assigned to one of two groups: a supplement group, which was offered the supplement, along with all standard UI benefits and services, and a control (standard) group, not offered the supplement, but eligible for all standard UI benefits and services. The process was started with the filing of a regular UI claim, when workers were screened for displaced worker eligibility. The assignment to one of the two groups (by the SRDC research team) did not occur until the worker received a first UI benefit check. This process focused the study on UI benefit recipients, not on all displaced workers. In addition, the average time between ESP application and random assignment was eight weeks. The full reports in Bloom (1997, 1999) contain all the details.

The basic structure of the program was as follows. For eligible displaced workers who became re-employed within a 26 week period, in a full-time job (minimum 30 hours/week), in a new job that paid less than the old job, the supplement covered 75 percent of the earnings loss for each week worked, for up to two years after random assignment. The supplement was capped at a maximum of $250/week, and was based only on UI-insured earnings (earnings beyond the maximum UI insured amount) did not count toward calculating the payment. Workers returning to their old job with their previous employer were not eligible.

For this discussion, some relevant findings (all taken from Bloom (1999)):

1. During the one-year intake period, 8,144 displaced workers were enrolled in the study sample, with 5,912 not expecting to return to their employer. The Canadian displaced worker sample was fairly similar, in basic characteristics (age, education, job tenure), to a sample of manufacturing displaced workers from the U.S. Displaced Worker Survey.

2. Most supplement group members were well-informed about the basic provisions of the program. Also, there was broad interest in the supplement program. The HRDC report interprets this survey evidence as an indication from workers that there was little to lose from the program.
3. About 20 percent of displaced workers in the supplement group received supplement payments. Take up rates were higher for older workers, and those who had previously held a high-wage job. On average, recipients were paid $8,705 for 64 weeks of full-time employment during the two-year period. The minimum payment was $1, and the maximum $25,750. Thus total payments were quite large, and likely an important component of income during the two-year receipt period. In-depth interviews of supplement recipients revealed that the ESP was an important source of temporary income (over ninety percept of interviewees responded that the supplement made at least a fair or big bit of difference to total income).
4. There was a modest increase in full-time employment at the end of the six-month eligibility period. ESP increased the percentage of displaced workers who became re-employed full-time by 4.4 percentage points. About half of the increase was due to a shift from part-time to full-time employment and half to an increase in overall employment. Higher re-employment rates for the supplement group occurred in the 4th-6th months following random assignment.
5. ESP may have caused some workers to take jobs that paid less than the ones they would have taken otherwise. Hourly wages were 2.5 percent less than they would have been otherwise ($0.33). This could reflect a broadening of the range of job opportunities considered.
6. Virtually no effect on the amount or duration of unemployment benefits received by supplement group members. This result follows from the time delay in the difference in re-employment rates discussed above in point 4. The employment boost occurred late in the ESP eligibility period and this period started two months after job loss, leaving little time left for unemployment benefit receipt to be reduced.
7. Among supplement group non-recipients, when asked "why," 42 percent responded that "they couldn't find a job in time," and 8 percent replied "couldn't find a job working 30 hours/fulltime."

One conclusion is that the earnings supplement produced very modest effects on job search, in terms of promoting rapid re-employment and reduced UI receipt. For this group of workers, an earnings supplement as compensation may be a more useful framework. The supplement can deliver compensation (and improve worker welfare), in a way that promotes employment, yet be judged on its compensatory merits rather than on how it addresses standing problems in the unemployment insurance system.

5. Conclusions

Given these stylized facts about trade-related job loss, what does a model of trade liberalization and compensation need to do? Clearly it should generate involuntary job loss. As noted in Kletzer (2002b), workers face a high risk of job loss from industries with a rising share of imports in domestic supply. There is a subset of industries – those with both high and increasing import shares, where the rate of job loss is high – that confront sustained import competition. Beyond this subset, the relationship between rising import share and high rate of job loss is considerably weaker. This means that growing imports play a small role in job loss in the economy as a whole, but a large role in traditional import competing industries. These findings are consistent with Bernard and Jensen (2002), who find the probability of shutdown higher in industries that face increased import competition from low-income countries using establishment-level data. These findings are also consistent with Trefler (2001), who, for the most impacted industries from the U.S.-Canada FTA, finds tariff cuts reduced employment by 15 percent and the number of plants by 8 percent. To date, a key weakness of theoretical models of trade and liberalization is the absence of involuntary separations. With flexible wages (and prices), the mechanism separating workers from firms is a voluntary one, following a decline in the wage.

Second, worker skills (and perhaps capital too) must have a degree of sector specificity. A worker's current skill level can have implications for sectoral mobility. Between some sectors, mobility is possible only after training. Mobility between other sectors is not constrained by a need to retrain, but without training, a new job in a new sector will pay less than the old job.

Third, consider three (or maybe four) broad sectors. Two are within manufacturing, one being high skill manufacturing industries (perhaps export oriented), and the other a set of lower

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skill manufacturing industries (import-competing). In the service sector, there is a set of lower skill services industries, where workers can enter without training, and then a medium skill services sector (entry with training). For empirical completeness, we might consider a high skill services sector, where there is entry by formal education only. This sector is not likely very relevant to the current set of displaced workers.

Let trade liberalization displace workers from the lower-skill manufacturing sector. Displaced workers can enter the high-skill manufacturing sector only with retraining (similarly with medium-skilled services). Re-employment in the old, lower-skill manufacturing sector is possible, as vacancies occur. This outcome requires waiting for a vacancy (wait unemployment), and is associated with relatively small earnings losses. Without training, a trade-displaced worker can seek reemployment in lower-skill services, with large earnings losses.[23]

Broadening the policy discussion beyond training may be one of the most useful results of the brief emergence of wage insurance in policy discussions. Very little has been said here about training and its value. Training does help some displaced workers, but overall the evidence suggests an appraisal similar to Jacobson (1998, pg. 505), "… that training should be used sparingly," and that "… policymakers appear to underrate the ability of most workers to acquire substantially more human-capital-enhancing knowledge on the job rather than in the classroom." It is worth noting that wage insurance may have a training incentive, because by narrowing earnings losses, it can encourage workers to consider entry-level jobs that offer on-the-job training.

There are several questions for future research. The new U.S. wage insurance demonstration program will hopefully provide information on how the reemployment incentive

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[23] A question to consider is whether some workers, based on a characteristic, can be trained, and others not, with the nontrainees eligible for wage insurance.

works and the nature of program cost savings. It seems important to continue to consider how the compensatory aspects of wage insurance interact with the aspects that speed returning to work. In regard to the longer-run, labor market outcomes under wage insurance should be compared to TAA/training, for different groups of workers.

References

Baily, Martin Neil. 1978. "Some Aspects of Optimal Unemployment Insurance," *Journal of Public Economics*, Vol. 10, pp. 379-402.

Baily, Martin N., Gary Burtless, and Robert E. Litan. 1993. *Growth with Equity: Economic Policymaking for the Next Century*. Washington, DC: The Brookings Institution.

Bernard, Andrew B. and J. Bradford Jensen. 2002. "The Deaths of Manufacturing Plants," National Bureau of Economic Research, Working Paper #9026, June.

Bhagwati, Jagdish N., ed. 1982. *Import Competition and Response*. Chicago: University of Chicago Press.

Bloom, Howard, Barbara Fink, Susanna Lui-Gurr, Wendy Bancroft, and Doug Tattrie. 1997. Implementing the Earnings Supplement Project: A Test of a Re-employment Incentive. Social Research and Demonstration Corporation, October.

Bloom, Howard, Saul Schwartz, Susanna Lui-Gurr, with Jason Peng and Wendy Bancroft. 1999. *Testing a Re-employment Incentive for Displaced Workers: The Earnings Supplement Project*. Social Research and Demonstration Corporation, May.

Brander, James A. and Barbara J. Spencer. 1994. "Trade Adjustment Assistance: Welfare and incentive effects of payments to displaced workers," *Journal of International Economics*, Vol. 36, No. 3 / 4 (May): pp. 239-261.

Brecher, Richard A. and Ehsan U. Choudhri. 1994. "Pareto gains from trade, reconsidered: Compensating for jobs lost," *Journal of International Economics*, Vol. 36, No. 3 / 4 (May): pp. 223-238.

Davidson, Carl and Steven J. Matusz. 2001. "On Adjustment Costs," Michigan State University working paper.

Davidson, Carl and Steven J. Matusz. 2002. "Trade Liberalization and Compensation," Leverhulme Centre for Research on Globalization and Economic Policy, Research Paper Series, #2002/10.

Decker, Paul T. and Walter Corson. 1995. "International Trade and Worker Displacement: Evaluation of the Trade Adjustment Assistance Program," *Industrial and Labor Relations Review*, vol. 48, no. 4: pp. 758-774.

Decker, Paul T. and Christopher J. O'Leary. 1994. "Evaluating Pooled Evidence from the Reemployment Bonus Experiments," Upjohn Institute Staff Working Paper 94-28.

Dixit, Avinash and Victor Norman. 1980. *Theory of International Trade*. Cambridge: Cambridge University Press.

Dixit, Avinash and Victor Norman. 1986. "Gains from Trade without Lump-Sum Compensation," *Journal of International Economics*, Vol. 21: pp. 111-122.

Feenstra, Robert C. and Tracy R. Lewis. 1994. "Trade adjustment assistance and Pareto gains from trade," *Journal of International Economics*, Vol. 36, No. 3 / 4 (May): pp. 201-222.

Jacobson, Louis. 1998. "Compensation Programs," in S.M. Collins, ed., *Imports, Exports, and the American Worker*. Washington, DC: The Brookings Institution, pp. 473-537.

Jacobson, Louis, Robert LaLonde, and Daniel Sullivan. 1993. *The Costs of Worker Dislocation*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Kletzer, Lori G. 1998. "Job Displacement," *Journal of Economic Perspectives*, vol. 12, no. 1, pp. 115-136.

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

Kletzer, Lori G. 2002a. "Globalization and American Job Loss: Public Policy to help Workers," Industrial Relations Research Association, *Perspectives on Work*, Vol. 6, No. 1, June, pp. 28-30.

Kletzer, Lori G. 2002b. *Imports, Exports and Jobs: What does trade mean for employment and job loss?* Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Kletzer, Lori G. and Robert E. Litan. 2001. "A Prescription to Relieve Worker Anxiety," Institute for International Economics Policy Brief, PB01-2, March.

Lawrence, Robert Z. and Robert E. Litan. 1986. *Saving Free Trade: A Pragmatic Approach*. Washington, DC: The Brookings Institution.

Leigh, Duane. 1990. *Does Training Work for Displaced Workers? A Survey of Existing Evidence*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Parsons, Donald O. 2000. "Wage Insurance: A Policy Review," *Research in Employment Policy*. Volume 2. JAI Press, pp. 119-140.

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

Scott, Robert E. 2001. "NAFTA's Hidden Costs: Trade Agreement Results in Job Losses, Growing Inequality, and Wage Suppression for the United States," in Economic Policy Institute, *NAFTA At Seven: Its Impact on Workers in All Three Nations*, EPI Briefing Paper, April.

Trefler, Daniel. 2001. "The Long and Short of the Canada-U.S. Free Trade Agreement," National Bureau of Economic Research Working Paper #8293, May.

United States Trade Deficit Review Commission. 2000. The U.S. Trade Deficit: Causes, Consequences, and Recommendations for Action. Washington: U.S. Trade Deficit Review Commission.

Table 1
High import competing industries and job displacement, 1979-99

| | Total displaced 1979-99 | Share of total mfg. displaced | Mean job loss rate | Change in import share | | | 1979 Import Share |
				1979-94	1979-85	1985-94	
Electrical machinery, I	1,576,095						
Electrical machinery	1,180,706	0.0703	0.0402	0.2063	0.0712	0.1351	0.1066
Radio, TV	395,389	0.0235	0.1052	0.147	0.0458	0.1012	0.151
Apparel, I							
Apparel	1,135,668	0.0676	0.0562	0.2497	0.1034	0.1464	0.1322
Transportation Equipment, I	985,760						
Motor vehicles	918,066	0.0546	0.0431	0.1012	0.0857	0.0156	0.1733
Cycles & misc. transport	67,694	0.0040	0.0838	-0.0631	-0.0221	-0.041	0.2906
Machinery, except electrical, I	905,514						
Electronic computing eqp	513,988	0.0306	0.0454	0.384	0.086	0.298	0.1031
Construction & material moving machines	350,900	0.0209	0.0526	0.1771	0.0905	0.0866	0.0595
Office & acct machines	40,626	0.0024	0.0297	0.3715	0.0827	0.2888	0.0795
Metal industries, I	494,660						
Blast furnaces	361,428	0.0215	0.0531	0.0709	0.0739	-0.003	0.1191
Other primary metal	133,232	0.0079	0.0719	0.0024	0.0222	-0.0198	0.189
Misc. manuf industries	335,091	0.0199	0.0505	0.1902	0.1099	0.0803	0.1857
Leather & Leather products	246,451						
Footwear	184,417	0.0110	0.0871	0.3587	0.2192	0.1395	0.3478
Leather products	57,337	0.0034	0.1217	0.3906	0.195	0.1957	0.2694
Leather tanning & finish	4,697	0.0003	0.074	0.1173	0.0725	0.0448	0.16
Professional & photographic eqpt.	240,200						
Scientific & controlling	163,503	0.0097	0.0278	0.154	0.0424	0.1116	0.0743
Photographic eqp	67,754	0.0040	0.0321	0.1396	0.0519	0.0877	0.1206
Watches, clocks	8,943	0.0005	0.0913	0.4129	0.2261	0.1868	0.3873
Rubber & Misc. plastics	192,960						
Other rubber products	113,144	0.0067	0.0437	0.1567	-0.0125	0.1692	0.0861
Tires & inner tubes	79,816	0.0048	0.0452	0.096	0.038	0.058	0.1295
Textiles, I	159,177						
Knitting mills	137,725	0.0082	0.0342	0.1585	0.0973	0.0612	0.0606
Misc. textile	21,452	0.0013	0.0449	0.0146	0.0142	0.0005	0.1186
Toys & sporting goods	155,970	0.0093	0.0597	0.2781	0.148	0.1301	0.2292
Pottery & related	26,471	0.0016	0.0733	0.1326	0.1054	0.0271	0.3126
Totals/Means	6,454,017	0.3842	0.0594	0.1846	0.0846	0.1000	0.1689

Taken from Kletzer (2001), table 2.1. Author's calculations from the NBER Trade Database and the Displaced Workers Surveys, 1984-2000.

Table 2
Characteristics of displaced workers, 1979-99
Manufacturing and Non-manufacturing workers

	Manufacturing	Utilities, Wholesale & Retail Trade, Services
Age at displacement:		
20-24 years	.144	.164
25-34	.333	.344
35-44	.254	.256
45-54	.168	.153
55-64	.101	.082
Average age, years (Std.Dev.)	38.6	37.3
	(11.5)	(11.2)
Education:		
Less than high school	.210	.119
High school graduate	.437	.365
Some College	.215	.294
College degree +	.137	.222
Average years of education (Std. Dev)	12.3	13.2
	(2.6)	(2.4)
Job tenure at time of displacement:		
Less than 3 years	.402	.510
3-5 years	.227	.229
6-10 years	.156	.133
11-20 years	.131	.082
> 20 years	.084	.045
Average job tenure, years (Std. Dev)	6.5	4.6
	(7.8)	(6.2)
Share female	.369	.504
Share minority	.176	.170
Share displaced from fulltime jobs	.956	.837
Pre-displacement occupation:		
White collar	.307	.645
Skilled blue collar	.188	.075
Unskilled blue collar	.480	.138
Services	.023	.140
Weekly earnings on the old job:		
Mean (Std. Dev.)	$396.88	$368.65
	($250.89)	($269.19)
Share earned less than $200/wk	.18	.28
Share earned more than $800/wk	.06	.07
Share reemployed at survey date	.648	.691
For reemployed:		
Mean change in log earnings:	-.121	-.038
	(.473)	(.575)
Median change	-0.047	0
Share with no earnings loss or earning more	.35	.41
Share with earnings losses greater than 15%	.35	.29
Share with earnings losses greater than 30%	.25	.21

Taken from Kletzer (2001), table 3.1
Workers displaced from agriculture, mining, construction, forestry and fishing excluded.

Table 3
Characteristics of displaced manufacturing workers, 1979-99
By industry level of import-competition

	High Import Competition Mfg.	Medium Import Competition Mfg.	Low Import Competition Mfg.
Age at displacement:			
20-24 years	.131	.149	.157
25-34	.323	.338	.340
35-44	.267	.240	.262
45-54	.174	.169	.155
55-64	.104	.103	.087
Average age, years (Std.Dev.)	39.1	38.4	37.8
	(11.4)	(11.6)	(11.3)
Education:			
Less than high school	.213	.219	.182
High school graduate	.427	.444	.446
Some College	.212	.210	.229
College degree +	.148	.126	.142
Average years of education (Std. Dev)	12.3	12.3	12.5
	(2.7)	(2.6)	(2.5)
Job tenure at time of displacement:			
Less than 3 years	.388	.398	.442
3-5 years	.221	.231	.230
6-10 years	.168	.154	.134
11-20 years	.130	.133	.125
> 20 years	.091	.083	.069
Average job tenure, years (Std. Dev)	6.8	6.5	5.9
	(7.9)	(7.8)	(7.7)
Share female	.449	.304	.351
Share minority	.190	.165	.167
Share displaced from fulltime jobs	.966	.960	.924
Pre-displacement occupation:			
White collar	.313	.286	.345
Skilled blue collar	.180	.209	.155
Unskilled blue collar	.488	.478	.466
Services	.018	.025	.029
Weekly earnings on the old job:			
Mean (Std. Dev.)	$402.97	$400.41	$375.11
	($273.39)	($236.55)	($230.52)
Share earned less than $200/wk	.24	.16	.18
Share earned more than $800/wk	.07	.06	.05

Taken from Kletzer (2001), table 3.2.

Table 4
Post-displacement outcomes, 1979-99
by industry level of import-competition

	High Import Competition Mfg.	Medium Import Competition Mfg.	Low Import Competition Mfg.
Share reemployed at survey date	.634	.654	.668
For reemployed:			
Mean change in log earnings:	-.132	-.126	-.086
	(.475)	(.469)	(.475)
Median change	-.047	-.062	-0.027
Share with no earnings loss or earning more	.36	.34	.38
Share with earnings losses greater than 15%	.35	.36	.34
Share with earnings losses greater than 30%	.25	.25	.26

Taken from Kletzer (2001), table 3.3

Table 5
Characteristics of "high" import-competing industry workers, rank ordered by number of workers displaced, 1979-99

	Mean old job earnings	Share female	Share High School Dropouts	Grads	Share w/ tenure > 10 yrs.	Share reemploy	Change in weekly earnings Median	Mean	Share w/ earnings loss >30%	Share w/ jobless > 26 wks
Electrical machinery	$412.16	0.484	0.139	0.414	0.184	0.673	-0.033	-0.143	0.22	0.222
Apparel	$236.37	0.791	0.378	0.447	0.181	0.556	-0.041	-0.083	0.199	0.203
Motor vehicles	$448.32	0.248	0.196	0.503	0.287	0.622	-0.117	-0.228	0.35	0.296
Electronic computing eqp	$588.10	0.377	0.068	0.256	0.224	0.737	-0.068	-0.239	0.254	0.134
Radio, TV	$431.61	0.479	0.138	0.431	0.214	0.657	-0.003	-0.071	0.192	0.252
Blast furnaces	$509.54	0.111	0.203	0.465	0.39	0.617	-0.36	-0.493	0.446	0.367
Construction & material	$489.36	0.178	0.152	0.415	0.219	0.678	-0.17	-0.296	0.307	0.3
Misc. manuf industries	$327.01	0.46	0.236	0.416	0.14	0.638	-0.023	-0.173	0.229	0.201
Footwear	$240.26	0.662	0.427	0.439	0.194	0.543	-0.071	-0.072	0.239	0.329
Scientific & controlling	$464.28	0.403	0.087	0.311	0.128	0.717	0.021	-0.088	0.17	0.198
Toys & sporting goods	$333.96	0.506	0.212	0.312	0.117	0.619	-0.03	-0.153	0.245	0.23
Knitting mills	$223.05	0.759	0.368	0.487	0.167	0.609	-0.024	-0.107	0.225	0.263
Other primary metal	$444.22	0.252	0.189	0.563	0.257	0.581	-0.061	-0.157	0.306	0.207
Other rubber products	$311.23	0.533	0.261	0.522	0.297	0.683	0	-0.166	0.231	0.101
Tires & inner tubes	$605.57	0.247	0.085	0.309	0.485	0.689	-0.42	-0.464	0.487	0.315
Photographic eqp	$526.49	0.223	0.137	0.414	0.385	0.777	-0.077	-0.15	0.254	0.236
Cycles & misc. transport	$352.04	0.219	0.221	0.647	0.136	0.681	0	-0.203	0.255	0.251
Leather products	$226.64	0.734	0.525	0.321	0.17	0.378	-0.089	-0.106	0.254	0.335
Office & acct machines	$464.81	0.432	0.095	0.462	0.167	0.612	0.206	0.175	0.117	0.237
Pottery & related	$267.02	0.454	0.376	0.386	0.229	0.396	-0.223	-0.464	0.338	0.214
Misc. textile	$282.40	0.666	0.379	0.559	0.222	0.511	-0.077	-0.328	0.398	0.242
Watches, clocks	$403.63	0.268	0.098	0.434	0.241	0.777	0.01	-0.066	0.128	0.169
Leather tanning & finish	$322.83	0.368	0.098	0.471	0.202	0.635	0.158	0.101	0.092	0.109
High import competing average	$402.97	0.449	0.213	0.427	0.221	0.635	-0.047	-0.132	0.253	0.24
Mfg. Average	$396.88	0.369	0.211	0.437	0.215	0.648	-0.047	-0.121	0.252	0.221
Non-Manufacturing average	$368.65	0.511	0.119	0.365	0.127	0.691	0	-0.038	0.212	0.127

Taken from Kletzer (2001), table 3.4
Changes in weekly earnings are changes in ln(earnings).

Table 6
Change in the probability of reemployment
Marginal effects (calculated from logit coefficients)

	(1) Full sample	(2) Full sample	(3) Full sample
Nondurable goods Mfg.	-0.0598**	-0.0274*	-0.0269**
	(0.0193)	(0.0128)	(0.0104)
Durable goods Mfg.	-0.0289*	-0.0226*	-0.0423**
	(0.0129)	(0.0099)	(0.0094)
Transport, Comm., Utility	-0.0098	-0.0027	-0.0259
	(0.0177)	(0.0146)	(0.0142)
Age at displacement:			
20-24 years		0.0940**	0.0851**
		(0.0107)	(0.0110)
25-34 years		0.1097**	0.1052**
		(0.0079)	(0.0079)
35-44 years		0.1106**	0.1101**
		(0.0096)	(0.0098)
Education:			
High school graduate		0.1058**	0.1116**
		(0.0079)	(0.0081)
Some College		0.1599**	0.1622**
		(0.0083)**	(0.0084)**
College		0.2494**	0.2434**
		(0.0093)**	(0.0093)**
Job tenure:			
Less than 3 years		0.0106	0.0191
		(0.0103)	(0.0106)
3-5 years		0.0376**	0.0463**
		(0.0101)	(0.0104)
6-10 years		0.0294**	0.0366**
		(0.0104)	(0.0106)
Displaced from fulltime Job		0.1019**	0.0780**
		(0.0094)	(0.0090)
Minority		-0.1063**	-0.1029**
		(0.0084)	(0.0084)
Married		0.0193**	0.0116
		(0.0070)	(0.0067)
Female			-0.0973**
			(0.0062)
Year displaced:			
1979-80	-0.0764**	-0.0747**	-0.0736**
	(0.0150)	(0.0157)	(0.0152)
1984-89	0.0569**	0.0538**	0.0567**
	(0.0086)	(0.0083)	(0.0083)
1990-92	0.0510**	0.0366**	0.0383**
	(0.0088)	(0.0091)	(0.0090)
1993-99	0.1774**	0.1717**	0.1773**
	(0.0098)	(0.0098)	(0.0099)
Years since displacement	0.0828**	0.0794**	0.0805**
	(0.0034)	(0.0037)	(0.0037)
Constant	-0.0911**	-0.3918**	-0.3251**
	(0.0133)	(0.0206)	(0.0212)
Observations	35435	35222	35222

Standard errors in parentheses
* significant at 5%; ** significant at 1%
Taken from Kletzer (2001), table 4.1

Table 7
Change in the probability of reemployment, manufacturing sample
Marginal effects (calculated from logit coefficients)

	(1)	(2)	(3)	(4)
High import-competing	-0.0408*	-0.0345**	-0.0206	-0.0206
	(0.0198)	(0.0124)	(0.0130)	(0.0134)
Medium import-competing	-0.0068	0.0002	-0.0030	-0.0040
	(0.0160)	(0.0141)	(0.0126)	(0.0126)
Age at displacement:				
20-24 years		0.1074**	0.0944**	0.1065**
		(0.0209)	(0.0206)	(0.0208)
25-34 years		0.1196**	0.1122**	0.1185**
		(0.0137)	(0.0138)	(0.0136)
35-44 years		0.1115**	0.1090**	0.1126**
		(0.0180)	(0.0186)	(0.0186)
Education:				
High school graduate		0.1050**	0.1063**	0.1090**
		(0.0118)	(0.0119)	(0.0121)
Some College		0.1456**	0.1392**	0.1387**
		(0.0126)	(0.0128)	(0.0132)
College		0.2716**	0.2554**	0.2540**
		(0.0167)	(0.0177)	(0.0178)
Job tenure:				
Less than 3 years		0.0422**	0.0576**	0.0619**
		(0.0135)	(0.0141)	(0.0143)
3-5 years		0.0644**	0.0788**	0.0836**
		(0.0150)	(0.0156)	(0.0159)
6-10 years		0.0652**	0.0758**	0.0798**
		(0.0141)	(0.0140)	(0.0142)
Displaced from fulltime Job		0.1117**	0.0818**	0.0722*
		(0.0297)	(0.0305)	(0.0301)
Minority		-0.1111**	-0.1024**	-0.1056**
		(0.0138)	(0.0141)	(0.0142)
Married		0.0388**	0.0284**	0.1068
		(0.0098)	(0.0097)	(0.0140)
Female			-0.1049**	0.0023
			(0.0111)	(0.0136)
Female*married				-0.1768**
				(0.0260)
Year displaced:				
1979-80	-0.0968**	-0.0979**	-0.0949**	
	(0.0212)	(0.0236)	(0.0228)	
1984-89	0.0684**	0.0726**	0.0744**	
	(0.0123)	(0.0118)	(0.0120)	
1990-92	0.0551**	0.0487**	0.0491**	
	(0.0136)	(0.0140)	(0.0134)	
1993-99	0.1803**	0.1854**	0.1901**	
	(0.0152)	(0.0170)	(0.0174)	
Years since displacement	0.0944**	0.0935**	0.0941**	
	(0.0048)	(0.0055)	(0.0058)	
Constant	-0.1392**	-0.4903**	-0.4263**	-0.4770**
	(0.0191)	(0.0375)	(0.0355)	(0.0357)
Observations	13846	13795	13795	13795

Standard errors in parentheses
* significant at 5%; ** significant at 1%
Taken from Kletzer (2001), table 4.2

Table 8
Re-employment Sector, earnings losses and jobless durations, by industry level of import competition

Level of import competition	Agriculture	Mining	Construction	Manufacturing N-Durables	Durables	Transport, Utilities	Trade Wholesale	Retail	Finance, Insurance R. Estate	Services Personal, Business	Professional	Gov't	Total
High													
Number	19,379	23,672	190,065	853,687	1887237	259,336	221,516	556,987	214,245	524,750	462,936	93,906	5307716
Share	0.0036	0.0044	0.0358	0.1608	0.3555	0.0488	0.0417	0.1049	0.0403	0.0988	0.0883	0.0176	1
Median earnings chg.	-0.181	-0.078	-0.086	-0.037	0	-0.01	-0.07	-0.262	0	-0.113	-0.149	-0.128	-0.048
Mean earnings chg.	-0.294	-0.064	-0.13	-0.058	-0.045	-0.118	-0.133	-0.334	-0.058	-0.223	-0.255	-0.062	-0.125
Median Wks.	38	9	12	8	6	6	8	8	6	6	13	10	8
Medium													
Number	67,091	27,302	394,009	949,850	2089635	302,265	257,804	538,684	217,211	551,787	470,198	131,914	5997750
Share	0.0112	0.0045	0.0656	0.1583	0.3484	0.0503	0.0429	0.0898	0.0362	0.0919	0.0783	0.0219	1
Median earnings chg.	-0.261	-0.041	-0.053	-0.023	-0.029	0	-0.131	-0.251	-0.136	-0.228	-0.197	-0.055	-0.063
Mean earnings chg.	-0.29	0.144	-0.062	-0.034	-0.041	-0.075	-0.149	-0.29	-0.218	-0.298	-0.225	-0.114	-0.118
Median Wks.	6	10	6	4	6	9	6	8	9	6	8	8	6
Low													
Number	31,944	3,943	125,304	559,789	535,946	156,584	125,062	261,557	93,893	281,170	299,028	61,134	2535354
Share	0.0125	0.0015	0.0494	0.2207	0.2113	0.0617	0.0493	0.1032	0.037	0.1109	0.1179	0.0241	1
Median earnings chg.	-0.048	0.182	0	-0.006	0.018	0	-0.043	-0.19	0.018	-0.052	-0.163	-0.331	-0.028
Mean earnings chg.	-0.157	0.008	-0.155	-0.012	0.026	0.048	-0.052	-0.217	-0.074	-0.15	-0.166	-0.393	-0.077
Median Wks.	8	0	8	4	5	6	4	6	4	6	10	7	6
Non-manufacturing													
Number	164,442	62,076	896,199	951,046	1491502	2172656	1324330	4488224	2276067	3368766	4659912	579,645	2.24E+07
Share	0.0073	0.0027	0.04	0.0424	0.0665	0.0969	0.0591	0.2003	0.1016	0.1504	0.208	0.0258	1
Median earnings chg.	-0.062	0.084	0	0.003	0.051	0	-0.028	-0.028	0.001	0	0	0.039	0
Mean earnings chg.	-0.113	0.086	0.016	0.039	0.073	0.009	0.009	-0.037	-0.019	-0.034	0.007	0.101	-0.003
Median Wks.	3	4	4	5	4	4	4	3	4	4	3	6	4

Taken from Kletzer (2001), table 6.1.
Changes in earnings are changes in ln(earnings).