
Appendix A

Data on Trade Flows and Job Loss

To define a set of import-competing industries, the central data challenge involves bringing together product-based trade flows and production data with industry-based employment and job loss data.

Data on the value of US imports and exports, by 4-digit SIC category, are available as part of the NBER Trade Database for the period 1958-94. The data file also reports the 1958-94 value of domestic shipments from the NBER Productivity Database.¹ Import share is defined as the ratio of imports to total domestic supply, where total domestic supply is the sum of domestic production (shipments) minus exports plus imports.

The SIC-based industry trade data must be aggregated up to 3-digit 1990 CIC codes, to combine the trade information with information on job displacement based on the Current Population Survey.

Measuring Industry Job Loss Using the Current Population Survey

The Displaced Worker Surveys (DWSs) are administered biennially as supplements to the Current Population Survey. The CPS is a monthly survey of about 60,000 households that provides basic data on employment and unemployment for the United States. The first DWS

1. The 1958-94 file combines data from the earlier NBER Trade and Immigration data file (described in Abowd 1991) with the NBER Trade Database (see Feenstra 1996).

was administered in January 1984 and the most recent in February 2000. The time series of surveys provide coverage of displacements for the period 1979-99. 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 3- or 5-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.”² If the answer was yes, a series of questions followed concerning the old job and the period of joblessness.

A common understanding of job displacement is that it occurs without personal prejudice; terminations are related to the operating decisions of the employer and are independent of individual job performance. In the DWSs, this definition can be implemented by drawing the sample of displaced from individuals who respond that their job loss was due to the reasons noted above. Other causes of job loss, such as quits or firings, are not considered displacements.³ This operational definition is not without ambiguity: the displacements are “job” displacements, in the sense that an individual displaced from a job and rehired for a different job by the same employer is considered displaced.

Some of the distinctions may be too narrow or arbitrary. The distinction between quits and displacements is muddied by the ability of employers to reduce employment by reducing or failing to raise wages. Wage changes may induce some workers to quit (and not be in the sample), whereas others opt to stay with the firm (and they get displaced and enter the sample).⁴ This distinction means that the displaced-worker sample will underestimate the amount of job change “caused” by trade. In addition, if the workers who stay on with the firm until displacement are those who face the worst labor market outcomes of all those at risk of displacement, then the displaced sample will be potentially nonrandom, and it will overstate the costs of job loss. Without data on quits, these issues cannot be addressed.

Defining the Sample

The sample here is limited to workers displaced from manufacturing industries, aged 20 to 64 years at the time of displacement. Because the information is retrospectively gathered, it has potential recall error. Prob-

2. For the 1984-92 surveys, the recall period was 5 years. Starting in 1994, the recall period was shortened to 3 years.

3. Individuals may also respond that their job loss was due to the end of a seasonal job or the failure of a self-employed business. These individuals are not considered displaced in this book. For a discussion of these reasons, see Farber (2001).

4. Jacobson, LaLonde, and Sullivan (1993) show that wages fall for displaced workers before they are displaced.

lems of recall are compounded by the overlapping coverage of years of displacement by surveys, with some years covered in two or three surveys.⁵ This bias is believed to be significant. As Topel and Farber show, it is likely that the surveys seriously underestimate job loss that occurred long before the survey date due to inaccuracies in recall as well as question design.⁶ This makes it desirable to have nonoverlapping recall periods (i.e., each year of displacement drawn from only one survey) that are relatively short. To incorporate these characteristics and to establish a count of displaced workers, the sample was restricted to displacements occurring in the 2-year period before each survey. A larger sample was drawn from the 1984 survey to extend the time series coverage back to 1979. Industry displacement rates, reported in table 2.1, were calculated by dividing the number of workers displaced from a 3-digit CIC industry in a year by the number of workers employed in that industry in that year.

To the extent that these procedures are used to establish a count of import-competing displaced workers, there are some limitations. Multiple job losses per worker are not counted. Respondents who report “other” as their reason for job loss are excluded. Using a 2-year window for the 1984-92 surveys (which had 5-year recall periods) will undercount job loss, because workers who report losing jobs in the fourth or fifth year before the survey will be counted as nonlosers. Farber (1997, 2001) adopts a correction method, which is not used here. Overall, my count should be considered a conservative one, but one that is systematically conservative across all industries. If I undercount job loss, I expect to do so across the board, not differentially by industry.

Once the count of displaced workers was established for table 2.1, the fullest sample of displaced workers was drawn from the DWSs to investigate worker characteristics and analyze postdisplacement outcomes.

5. The 1984 DWS covered the period 1979-83; the 1986 survey, 1981-85; the 1988 survey, 1983-87; the 1990 survey, 1985-89; the 1992 survey, 1987-91; the 1994 survey, 1991-93; and the 1996 survey, 1993-95.

6. If more than one job was lost, information is gathered only for the job held longest. See Topel (1990) and Farber (1997).

Appendix B

Intraindustry Trade

An industry's import share and export intensity provide a rough understanding of intraindustry trade, in the sense that high import share teamed with high export intensity suggest that the industry is actively importing and exporting. A more precise, now-established method for measuring intraindustry trade was offered by Grubel and Lloyd in 1975. That measure is:

$$IIT = 1 - \frac{|X - M|}{X + M}$$

where X and M represent, respectively, the value of exports and imports of an industry, and the vertical bars in the numerator denote the absolute value. The value of IIT ranges from 0, when an industry only exports or imports, to 1, when an industry's exports and imports are equal. Thus, the higher the value of IIT , the greater the degree of trade overlap, or intraindustry trade.

For our purposes, the Grubel-Lloyd index can be altered slightly to reveal not only whether trade is balanced, but also whether an industry is relatively more export oriented or import oriented. This is done simply by calculating the index without the absolute value. On the basis of these calculations, I can make a rough judgment as to whether an industry is an exporter or importer, and balanced or unbalanced.

Appendix C

Summary of Longitudinal Studies of Postdisplacement Earnings Changes

The Displaced Worker Surveys lack information on both long-term earnings changes and on how earnings would have grown if the displaced workers had not lost their jobs. However, studies using longitudinal data from national surveys and state administrative sources have provided useful insights on these issues.

On the basis of job losses in the early 1980s, Jacobson, LaLonde, and Sullivan (1993; hereafter, JLS) found large earnings losses following displacement, relative to what similar workers continued to earn when they stayed on their jobs, for a sample of Pennsylvania workers strongly attached to the labor market (prime-aged, with 6 or more years' job tenure before job loss and consistent attachment following). This comparison to a similar control group is critical and has been an important methodological approach to displaced-worker studies. Most important, earnings fell slightly in the year before separation. After the job loss, earnings fell sharply relative to the earnings of workers who remained with their firms for the next 4 years. Beyond 4 years, the earnings of displaced workers were nearly \$2,000 a quarter less than their nonseparated counterparts.

JLS sharpen their focus on established workers when they identify a group of "mass layoff separators." These are workers who separate from firms where employment declined by more than 30 percent from a late-1970s peak. Although this group may be a minority of the displaced, it also likely includes workers for whom the employment relationship was

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valuable. This group may include those with low levels of formal schooling, high tenure, and in unionized jobs, similar to some of our group of import-competing displaced workers. For this group of mass-layoff separators, the first costs of displacement occur about 3 years before separation, when their quarterly earnings decline by \$1,000 relative to expected earnings, due to hours reductions, real pay cuts, and temporary layoffs. After displacement, quarterly earnings of these workers fall by another \$2,000 to \$3,000 below expected levels. Even after 5 or 6 years, quarterly earnings remain between \$1,000 and \$2,000 below expected levels. These losses equal approximately 25 percent of predisplacement earnings. Similar patterns of earnings losses are found for this group across gender, age, and industrial sector, although the picture does vary to some extent according to the strength of the regional economy.

One limitation of the JLS analysis is its use of Pennsylvania data, because displacement in a traditional industrial state may not be representative of the nation as a whole. It is, however, likely to be fairly representative of a subset of our group of import-competing displaced workers. In a national sample of experienced displaced workers drawn from the Panel Survey on Income Dynamics, Stevens (1997) found large, persistent earnings losses. In her sample, annual earnings fall approximately 25 percent in the year before job displacement. One year after displacement, earnings remain 15 percent below the earnings of the nondisplaced, and are highly variable. The losses are persistent; during the period 7 or more years following job loss, annual earnings are 6-12 percent below expected levels. Annual earnings fall because of both a decline in hours and a decline in wages. One year before displacement, hourly wages decline 8 percent below expected levels, and 1 year following displacement they remain 12 percent below expected levels. The hourly earnings declines are also persistent: 7 years after job loss, average hourly earnings are approximately 9 percent below expected levels, and similar losses are found at 10 years after displacement.

One important finding in Stevens (see also Schoeni and Dardia 1996) is that the number of separations is an important component of long-term earnings losses. For example, 41 percent of Stevens's sample reports at least two job displacements during a 20-year sample period. Whereas average annual earnings reductions 6 years after job loss are approximately 12 percent, if only a single job loss has been suffered, average earnings losses are approximately 4 percent. These findings would be consistent with a pattern in which hourly wages fall significantly with the first job loss due to the loss of specific skills and rents, but wages do not fall much with subsequent job loss because workers are less likely to accumulate specific skills or earn rents on their postdisplacement jobs. Thus, multiple job losses reduce annual earnings further not because they reduce wages further, but instead because they make a reduction in future hours of employment more likely.

Appendix D

Tables

Table D.1 Manufacturing industries by degree of import competition, with trade and job loss measures, 1979-99

Industry	Total displaced, 1979-99	Share of total manu- facturing displaced, 1979-99	Mean job loss rate, 1979-99	Change in import share		1979 import share	Change in exports 1979-94	Trade overlap mean, 1975-94		Importer or exporter? Balanced or unbalanced?
				1979-94	1985-94			"Original"	"Altered"	
<i>High import-competing</i>										
Electrical machinery, I	1,576,095									
Electrical machinery	1,180,706	0.0703	0.0402	0.2063	0.0712	0.1351	0.1066	0.8631	1.0904	Balanced importer
Radio, television	395,389	0.0235	0.1052	0.147	0.0458	0.1012	0.151	0.607	1.393	Unbalanced importer
Apparel, I	1,135,668	0.0676	0.0562	0.2497	0.1034	0.1464	0.1322	0.1743	1.8257	Unbalanced importer
Apparel										
Transportation equipment, I	985,760									
Motor vehicles	918,066	0.0546	0.0431	0.1012	0.0857	0.0156	0.1733	0.5403	1.4597	Unbalanced importer
Cycles and miscellaneous transport	67,694	0.0040	0.0838	-0.0631	-0.0221	-0.041	0.2906	0.832	1.1413	Balanced importer
Machinery, except electrical, I	905,514									
Electronic computing equipment	513,988	0.0306	0.0454	0.384	0.086	0.298	0.1031	0.8034	0.8892	Balanced exporter
Construction and material moving machines	350,900	0.0209	0.0526	0.1771	0.0905	0.0866	0.0595	0.5845	0.5845	Unbalanced exporter
Office and accounting machines	40,626	0.0024	0.0297	0.3715	0.0827	0.2888	0.0795	0.7618	1.0752	Balanced importer
Metal, I	494,660									
Blast furnaces	361,428	0.0215	0.0531	0.0709	0.0739	-0.003	0.1191	0.3211	1.6789	Unbalanced importer
Other primary metal	133,232	0.0079	0.0719	0.0024	0.0222	-0.0198	0.189	0.782	1.1858	Balanced importer
Miscellaneous manufacturing industries	335,091	0.0199	0.0505	0.1902	0.1099	0.0803	0.1857	0.4147	1.5853	Unbalanced importer
Leather and leather products	246,451									
Footwear	184,417	0.0110	0.0871	0.3587	0.2192	0.1395	0.3478	0.0825	1.9175	Unbalanced importer
Leather products	57,337	0.0034	0.1217	0.3906	0.195	0.1957	0.2694	0.1404	1.8596	Unbalanced importer
Leather tanning and finishing	4,697	0.0003	0.074	0.1173	0.0725	0.0448	0.16	0.8668	0.9601	Balanced exporter

Table D.1 Manufacturing industries by degree of import competition, with trade and job loss measures, 1979-99
(continued)

Industry	Total displaced, 1979-99	Share of total manu- facturing displaced, 1979-99	Mean job loss rate, 1979-99	Change in import share		1979 import share	Change in exports 1979-94	Trade overlap mean, 1975-94		Importer or exporter? Balanced or unbalanced?
				1979-94	1985-94			"Original"	"Altered"	
Metal, II	849,720									
Miscellaneous fabricated metals	340,304	0.2023	0.0314	0.0453	0.0193	0.026	0.5936	0.8628	1.0939	Balanced importer
Iron and steel foundries	139,257	0.0083	0.0477	0.0298	0.0236	0.0062	0.2704	0.6109	1.3891	Unbalanced importer
Metal forgings	107,463	0.0064	0.0317	0.0213	0.0164	0.0048	-0.7482	0.8335	0.886	Balanced exporter
Primary aluminum industries	96,387	0.0057	0.0624	0.1093	0.0451	0.0479	0.6637	0.7827	1.1399	Balanced importer
Cutlery, handtools	86,086	0.0051	0.0338	0.1034	0.0441	0.0593	0.7123	0.7487	1.2503	Unbalanced importer
Ordinance	49,842	0.0030	0.0628	0.1119	0.0026	0.1093	0.406	0.6098	0.6098	Balanced exporter
Screw machine products	30,381	0.0018	0.028	0.067	0.0176	0.0494	0.887	0.5002	1.4998	Unbalanced importer
Food and kindred products	582,591									
Canned fruit	208,685	0.0124	0.0339	0.0163	0.0233	-0.007	0.038	0.8055	1.1899	Balanced importer
Miscellaneous foods	192,143	0.0114	0.0407	0.0172	0.0061	0.0111	0.0492	0.6439	0.6439	Unbalanced exporter
Beverages	96,663	0.0058	0.0207	-0.0033	0.0024	-0.0058	0.0713	0.3641	1.6359	Unbalanced importer
Sugar products	65,100	0.0039	0.038	-0.0619	-0.0313	-0.0306	0.1394	0.5955	1.403	Unbalanced importer
Furniture and fixtures	550,404	0.0328	0.0257	0.0866	0.0485	0.0381	0.0464	0.4117	1.5883	Unbalanced importer
Chemicals and allied products, I	510,528									
Industrial and miscellaneous chemicals	286,703	0.0171	0.0297	0.0615	0.0404	0.0211	0.0709	0.743	0.743	Balanced exporter
Drugs	132,952	0.0079	0.0261	0.0414	0.0117	0.0297	0.0516	0.7521	0.7521	Balanced exporter
Plastics, synthetics	90,873	0.0054	0.0254	0.0806	0.0241	0.0564	0.0235	0.4656	0.4656	Unbalanced exporter
Miscellaneous plastic products	391,773	0.0233	0.0417	0.0438	0.0126	0.0312	0.0319	0.8747	1.0359	Balanced importer
Textiles, II	335,375									
Yarn, thread	298,764	0.0178	0.0375	0.0623	0.0405	0.0218	0.0453	0.7215	1.2559	Balanced importer
Floor coverings	36,611	0.0022	0.0476	0.0236	0.022	0.0016	0.0466	0.795	1.1969	Balanced importer
Sawmills, planing mills	313,622	0.0187	0.0362	0.0084	0.0029	0.0055	0.1353	0.6376	1.3624	Unbalanced importer
Optical and health supplies	279,636	0.0166	0.1095	0.0515	0.0082	0.0433	0.636	0.8075	0.8075	Balanced exporter
Glass and glass products	154,257	0.0092	0.0488	0.0736	0.038	0.0356	0.0555	0.8248	1.1539	Balanced importer
Household appliances	150,142	0.0089	0.0481	0.0967	0.0502	0.0465	0.0711	0.7361	1.2337	Balanced importer

Miscellaneous fabricated textiles	147,324	0.0088	0.0395	0.1085	0.0434	0.0651	0.0397	0.1624	0.5924	1.3807	Unbalanced importer
Miscellaneous wood products	117,380	0.0070	0.0405	0.0354	0.0136	0.0218	0.0659	0.7257	0.5789	1.4211	Unbalanced importer
Miscellaneous nonmetallic minerals	97,085	0.0058	0.0449	0.0656	0.0386	0.0027	0.0465	0.4672	0.869	1.091	Balanced importer
Pulp, paper	95,859	0.0057	0.0194	0.0135	0.004	0.0095	0.1548	0.6439	0.7937	1.2063	Balanced importer
Petroleum refining	88,234	0.0053	0.0293	0.0101	0.0256	-0.0156	0.0751	0.817	0.9322	1.5578	Unbalanced importer
Miscellaneous petroleum	19,853	0.0012	0.0717	0.0221	0.0243	-0.0022	0.0497	-0.1881	0.7111	1.2361	Balanced importer
Structural clay products	13,970	0.0008	0.0835	0.0876	0.0323	0.0053	0.0917	-0.3327	0.461	1.539	Balanced importer
Totals/means	7,076,400	0.4212	0.0622	0.0564	0.0278	0.0286	0.0626	0.5355	0.6867	1.0944	
Low import-competing											
Printing, publishing, and allied industries											
Printing, publishing	1,091,687	0.0517	0.036	0.008	0.0022	0.0058	0.0133	0.9694	0.7207	0.7207	Balanced exporter
Newspaper	223,046	0.0133	0.0226	-0.0008	0.0019	-0.0028	0.0012	1.1193	0.5948	1.2425	Unbalanced importer
Food and kindred products, II											
Meat products	610,132	0.0155	0.0304	-0.014	-0.0084	-0.0056	0.0479	0.7099	0.8574	0.913	Balanced exporter
Bakery	260,861	0.0077	0.0285	0.0085	0.0045	0.004	0.0053	2.0603	0.5856	1.4144	Unbalanced importer
Dairy products	130,075	0.0068	0.0441	0.0017	0.0007	0.0009	0.015	1.0272	0.8149	1.1745	Balanced importer
Grain milling	104,803	0.0062	0.0359	0.0132	0.0027	0.0105	0.0053	0.1336	0.2335	0.2335	Unbalanced exporter
Fabricated structural metals	537,044	0.0320	0.0528	0.009	0.0088	0.0002	0.0072	-0.0295	0.6309	0.6309	Balanced exporter
Cement, concrete, gypsum	154,755	0.0092	0.0306	-0.0084	0.0061	-0.0145	0.0207	0.3669	0.465	1.535	Unbalanced importer
Paperboard	153,757	0.0092	0.0329	0.009	0.003	0.0061	0.0037	1.487	0.7287	0.7287	Balanced exporter
Soaps and cosmetics	139,046	0.0083	0.0386	0.0299	0.0113	0.0186	0.0092	1.223	0.7143	0.7143	Balanced exporter
Miscellaneous paper	132,406	0.0079	0.0315	0.0103	0.0094	0.0009	0.0142	0.9942	0.7481	0.7915	Balanced exporter
Wood and mobile buildings	110,757	0.0066	0.0872	-0.0123	0.0002	-0.0125	0.047	0.1074	0.3461	1.6539	Unbalanced importer
Logging	74,905	0.0045	0.0504	0.0101	-0.0042	0.0143	0.0104	0.0272	0.086	0.086	Unbalanced exporter
Paints, varnishes	40,198	0.0024	0.0504	0.0141	0.0065	0.0076	0.002	1.0552	0.4005	0.4005	Unbalanced exporter
Tobacco	17,796	0.0011	0.0664	0.0004	-0.0017	0.0021	0.0071	1.2397	0.2333	0.2333	Unbalanced exporter
Totals/means	3,062,483	0.1823	0.0425	0.0052	0.0028	0.0023	0.0139	0.8347	0.5439	0.8315	

Note: See text for an explanation of the balanced/unbalanced trade assessment. Industries are defined at the 3-digit CIC level; some industries are grouped together at the 2-digit CIC level (in bold).

Source: Author's calculations from the Displaced Worker Surveys and the National Bureau of Economic Research Trade Database.

Table D.2 Characteristics of displaced workers

Panel A, 1979-99

Worker characteristics	High import competition, manufacturing	Medium import competition, manufacturing	Low import competition, manufacturing	All manufacturing	Utilities, trade, services
Age at displacement (years)					
20-24	0.131	0.149	0.157	0.144	0.164
25-34	0.323	0.338	0.340	0.333	0.344
35-44	0.267	0.240	0.262	0.254	0.256
45-54	0.174	0.169	0.155	0.168	0.153
55-64	0.104	0.103	0.087	0.101	0.082
Mean age, years (standard deviation)	39.1 (11.4)	38.4 (11.6)	37.8 (11.3)	38.6 (11.5)	37.3 (11.2)
Education					
Less than high school	0.213	0.219	0.182	0.210	0.119
High school graduate	0.427	0.444	0.446	0.437	0.365
Some college	0.212	0.210	0.229	0.215	0.294
College degree or higher	0.148	0.126	0.142	0.137	0.222
Mean years of education (standard deviation)	12.3 (2.7)	12.3 (2.6)	12.5 (2.5)	12.3 (2.6)	13.2 (2.4)
Job tenure at time of displacement (years)					
Less than 3	0.388	0.398	0.442	0.402	0.510
3-5	0.221	0.231	0.230	0.227	0.229
6-10	0.168	0.154	0.134	0.156	0.133
11-20	0.130	0.133	0.125	0.131	0.082
Greater than 20	0.091	0.083	0.069	0.084	0.045
Mean job tenure, years (standard deviation)	6.8 (7.9)	6.5 (7.8)	5.9 (7.7)	6.5 (7.8)	4.6 (6.2)
Share female	0.449	0.304	0.351	0.369	0.504
Share minority	0.190	0.165	0.167	0.176	0.170
Share displaced from fulltime jobs	0.966	0.960	0.924	0.956	0.837
Predisplacement occupation					
White collar	0.313	0.286	0.345	0.307	0.645
Skilled blue collar	0.180	0.209	0.155	0.188	0.075
Unskilled blue collar	0.488	0.478	0.466	0.480	0.138
Services	0.018	0.025	0.029	0.023	0.140
Weekly earnings on the old job					
Mean (standard deviation)	\$402.97 (\$273.39)	\$400.41 (\$236.55)	\$375.11 (\$230.52)	\$396.88 (\$250.89)	\$368.65 (\$269.19)
Share earned less than \$200/week	0.24	0.16	0.18	0.18	0.28
Share earned more than \$800/week	0.07	0.06	0.05	0.06	0.07
Share reemployed at survey date	0.634	0.654	0.668	0.648	0.691
For reemployed					
Mean change in log earnings (standard deviation)	-0.132 (0.475)	-0.126 (0.469)	-0.086 (0.475)	-0.121 (0.473)	-0.038 (0.575)
Median change in log earnings	-0.047	-0.062	-0.027	-0.047	0
Share with no earnings loss or earning more	0.36	0.34	0.38	0.35	0.41
Share with earnings losses greater than 15 percent	0.35	0.36	0.34	0.35	0.29
Share with earnings losses greater than 30 percent	0.25	0.25	0.26	0.25	0.21

Table D.2 (continued)

Panel B, 1979-89

Worker characteristics	High import competition, manufacturing	Medium import competition, manufacturing	Low import competition, manufacturing	All manufacturing	Utilities, trade, services
Age at displacement (years)					
20-24	0.153	0.177	0.178	0.167	0.198
25-34	0.351	0.364	0.354	0.357	0.370
35-44	0.248	0.207	0.234	0.228	0.224
45-54	0.145	0.149	0.149	0.148	0.127
55-64	0.102	0.103	0.084	0.099	0.080
Mean age, years (standard deviation)	38.5 (11.6)	37.8 (11.8)	37.5 (11.5)	38.1 (11.7)	36.6 (11.3)
Education					
Less than high school	0.226	0.250	0.199	0.232	0.145
High school graduate	0.459	0.477	0.467	0.469	0.419
Some college	0.189	0.164	0.196	0.179	0.249
College degree or higher	0.125	0.108	0.137	0.120	0.186
Mean years of education (standard deviation)	12.1 (2.6)	11.9 (2.6)	12.3 (2.6)	12.1 (2.6)	12.9 (2.4)
Job tenure at time of displacement (years)					
Less than 3	0.413	0.429	0.465	0.429	0.563
3-5	0.221	0.229	0.225	0.225	0.219
6-10	0.156	0.145	0.134	0.148	0.112
11-20	0.133	0.125	0.119	0.127	0.072
Greater than 20	0.072	0.071	0.056	0.071	0.034
Mean job tenure, years (standard deviation)	6.4 (7.7)	6.0 (7.5)	5.5 (7.1)	6.1 (7.5)	4.1 (5.8)
Share female	0.443	0.305	0.340	0.367	0.478
Share minority	0.160	0.151	0.144	0.154	0.136
Share displaced from full-time jobs	0.965	0.960	0.929	0.956	0.859
Predisplacement occupation					
White collar	0.281	0.256	0.331	0.279	0.614
Skilled blue collar	0.188	0.214	0.165	0.195	0.092
Unskilled blue collar	0.509	0.499	0.467	0.498	0.165
Services	0.022	0.029	0.037	0.028	0.129
Weekly earnings on the old job					
Mean (standard deviation)	\$397.69 (\$245.80)	\$391.82 (\$217.23)	\$366.97 (\$205.57)	\$389.96 (\$227.62)	\$360.84 (\$249.57)
Share earned less than \$200/week	0.25	0.16	0.17	0.18	0.26
Share earned more than \$800/week	0.06	0.05	0.04	0.05	0.06
Share reemployed at survey date	0.623	0.652	0.652	0.640	0.670
For reemployed					
Mean change in log earnings	-0.144 (0.476)	-0.125 (0.452)	-0.072 (0.465)	-0.123 (0.465)	-0.027 (0.522)
Median change in log earnings	-0.072	-0.077	-0.021	-0.068	0
Share with no earnings loss or earning more	0.39	0.40	0.46	0.41	0.50
Share with earnings losses greater than 15 percent	0.36	0.36	0.32	0.35	0.28
Share with earnings losses greater than 30 percent	0.26	0.26	0.24	0.25	0.20

(table continues next page)

Table D.2 Characteristics of displaced workers (continued)

Panel C, 1990-99

Worker characteristics	High import competition, manufacturing	Medium import competition, manufacturing	Low import competition, manufacturing	All manufacturing	Utilities, trade, services
Age at displacement (years)					
20-24	0.094	0.105	0.126	0.105	0.135
25-34	0.275	0.298	0.320	0.294	0.322
35-44	0.299	0.294	0.301	0.297	0.284
45-54	0.224	0.200	0.162	0.202	0.175
55-64	0.108	0.103	0.091	0.102	0.083
Mean age, years (standard deviation)	40.2 (11.1)	39.4 (11.2)	38.3 (11.0)	39.5 (11.2)	37.9 (11.0)
Education					
Less than high school	0.190	0.170	0.157	0.175	0.097
High school graduate	0.369	0.389	0.417	0.387	0.318
Some college	0.254	0.286	0.277	0.272	0.332
College degree or higher	0.186	0.155	0.149	0.166	0.252
Mean years of education (standard deviation)	12.7 (2.8)	12.7 (2.6)	12.8 (2.4)	12.7 (2.7)	13.5 (2.3)
Job tenure at time of displacement (years)					
Less than 3	0.345	0.349	0.409	0.359	0.466
3-5	0.221	0.233	0.237	0.229	0.237
6-10	0.190	0.168	0.134	0.169	0.150
11-20	0.127	0.146	0.133	0.136	0.091
Greater than 20	0.116	0.103	0.087	0.105	0.055
Mean job tenure, years (standard deviation)	7.4 (8.3)	7.2 (8.2)	6.5 (8.5)	7.2 (8.3)	5.1 (6.5)
Share female	0.460	0.303	0.366	0.374	0.526
Share minority	0.242	0.189	0.201	0.222	0.199
Share displaced from full-time jobs	0.969	0.961	0.917	0.956	0.819
Predisplacement occupation					
White collar	0.369	0.334	0.365	0.353	0.672
Skilled blue collar	0.167	0.199	0.140	0.176	0.060
Unskilled blue collar	0.452	0.444	0.464	0.451	0.115
Services	0.010	0.017	0.018	0.015	0.149
Weekly earnings on the old job					
Mean (standard deviation)	\$412.67 (\$317.67)	\$414.82 (\$265.23)	\$387.29 (\$263.03)	\$408.68 (\$285.81)	\$375.80 (\$285.78)
Share earned less than \$200/week	0.25	0.17	0.20	0.21	0.28
Share earned more than \$800/week	0.90	0.09	0.06	0.08	0.07
Share reemployed at survey date	0.654	0.657	0.691	0.663	0.708
For reemployed					
Mean change in log earnings (standard deviation)	-0.110 (0.472)	-0.130 (0.496)	-0.106 (0.489)	-0.118 (0.486)	-0.046 (0.617)
Median change in log earnings	-0.021	-0.046	-0.042	-0.036	-0.0044
Share with no earnings loss or earning more	0.45	0.40	0.42	0.42	0.49
Share with earnings losses greater than 15 percent	0.32	0.35	0.37	0.34	0.310
Share with earnings losses greater than 30 percent	0.24	0.25	0.29	0.26	0.22

Note: Workers displaced from agriculture, mining, construction, forestry, and fishing were excluded.

Source: Author's calculations from the Displaced Worker Surveys, 1984-2000, using sampling weights.

Table D.3 Characteristics of “medium” import-competing industry workers, rank ordered by number of workers displaced, 1979-99

Industry	Mean old job earnings	Share female	Share high school		Share with tenure > 10 years	Share reemployed	Change in weekly earnings		Share with earnings loss > 30 percent	Share with joblessness > 26 weeks
			Dropouts	Graduates			Median	Mean		
Machinery, except electrical	\$418.78	0.206	0.166	0.484	0.203	0.697	-0.037	-0.147	0.245	0.225
Furniture and fixtures	\$318.99	0.318	0.334	0.428	0.181	0.623	-0.043	-0.087	0.224	0.191
Miscellaneous plastic products	\$331.29	0.364	0.281	0.467	0.16	0.644	-0.079	-0.146	0.223	0.21
Aircraft and parts	\$534.97	0.276	0.132	0.399	0.197	0.67	-0.214	-0.281	0.321	0.269
Miscellaneous fabricated metal	\$366.98	0.271	0.157	0.521	0.243	0.633	-0.137	-0.202	0.273	0.274
Ship and boat building	\$402.05	0.104	0.237	0.491	0.21	0.665	-0.095	-0.316	0.289	0.303
Sawmills, planing mills	\$335.35	0.124	0.315	0.449	0.192	0.72	-0.029	-0.07	0.204	0.244
Yarn, thread	\$289.84	0.518	0.356	0.428	0.257	0.664	-0.077	-0.174	0.29	0.241
Industrial and miscellaneous chemicals	\$508.54	0.228	0.13	0.395	0.222	0.755	-0.092	-0.254	0.271	0.238
Optical and health supplies	\$443.62	0.491	0.141	0.299	0.105	0.696	-0.037	-0.108	0.206	0.182
Metalworking machinery	\$442.98	0.192	0.116	0.509	0.217	0.74	-0.041	-0.149	0.251	0.301
Guided missiles	\$616.11	0.286	0.046	0.267	0.277	0.654	-0.177	-0.335	0.332	0.163
Canned fruit	\$341.58	0.421	0.329	0.363	0.225	0.535	-0.048	-0.06	0.161	0.258
Miscellaneous foods	\$312.72	0.526	0.333	0.439	0.181	0.512	-0.026	-0.135	0.268	0.211
Glass and glass products	\$405.66	0.36	0.208	0.483	0.412	0.668	-0.124	-0.293	0.302	0.24
Household appliances	\$360.77	0.482	0.252	0.539	0.277	0.52	-0.119	-0.325	0.32	0.33
Farm machinery and equipment	\$416.08	0.225	0.147	0.54	0.259	0.634	-0.259	-0.31	0.39	0.378
Miscellaneous fabricated textiles	\$215.67	0.762	0.327	0.499	0.174	0.605	0	0.157	0.21	0.263
Iron and steel foundries	\$356.39	0.131	0.345	0.483	0.26	0.591	-0.103	-0.191	0.342	0.458
Drugs	\$510.98	0.532	0.078	0.296	0.27	0.731	-0.134	-0.258	0.3	0.142
Miscellaneous wood products	\$247.75	0.382	0.3	0.453	0.114	0.639	0	-0.067	0.207	0.275
Metal forgings	\$363.79	0.293	0.226	0.493	0.265	0.536	-0.087	-0.157	0.293	0.258
Miscellaneous nonmetallic mineral	\$439.68	0.168	0.263	0.422	0.254	0.647	-0.048	-0.129	0.23	0.178
Beverages	\$429.80	0.285	0.171	0.42	0.206	0.668	-0.089	-0.132	0.228	0.279
Primary aluminum industries	\$458.64	0.187	0.11	0.558	0.327	0.489	-0.143	-0.248	0.303	0.421
Pulp, paper	\$519.34	0.278	0.122	0.502	0.231	0.624	-0.141	-0.196	0.278	0.147
Plastics, synthetics	\$396.61	0.419	0.118	0.432	0.239	0.766	-0.128	-0.164	0.353	0.1

(table continues next page)

Table D.3 Characteristics of “medium” import-competing industry workers, rank ordered by number of workers displaced, 1979-99 (continued)

Industry	Mean old job earnings	Share female	Share high school		Share with tenure > 10 years	Share reemployed	Change in weekly earnings		Share with earnings loss > 30 percent	Share with joblessness > 26 weeks
			Dropouts	Graduates			Median	Mean		
Petroleum refining	\$671.35	0.186	0.202	0.299	0.295	0.715	-0.136	-0.15	0.337	0.238
Cutlery, handtools	\$357.18	0.42	0.215	0.447	0.106	0.58	-0.038	-0.208	0.269	0.284
Engines and turbines	\$443.01	0.202	0.137	0.496	0.3	0.766	-0.093	-0.105	0.228	0.334
Sugar products	\$277.30	0.605	0.381	0.423	0.227	0.497	-0.149	-0.228	0.272	0.338
Not specified manufacturing	\$216.68	0.296	0.322	0.454	0.254	0.533	0.075	0.245	0	0.108
Railroad locomotives	\$490.86	0.137	0.259	0.463	0.367	0.728	-0.365	-0.561	0.474	0.416
Ordnance	\$435.66	0.289	0.14	0.419	0.24	0.683	-0.202	-0.25	0.33	0.231
Agricultural chemicals	\$391.14	0.079	0.298	0.402	0.075	0.777	-0.121	0.012	0.076	0.254
Floor coverings	\$264.63	0.46	0.264	0.59	0.373	0.688	-0.137	-0.288	0.355	0.198
Screw machine products	\$380.52	0.214	0.372	0.446	0.235	0.693	-0.076	-0.087	0.194	0.149
Dyeing textiles	\$236.71	0.419	0.249	0.441	0.045	0.663	0	0.072	0.065	0.273
Miscellaneous petroleum	\$372.96	0.423	0.262	0.461	0.14	0.405	-0.288	-0.099	0.379	0.188
Not specified electrical machinery	\$243.86	0.492	0.14	0.38	0.146	0.546	0.014	0.032	0	0.343
Structural clay products	\$511.71	0.227	0.235	0.342	0.134	0.411	-0.262	-0.099	0.28	0.459
Medium import-competing average	\$400.41	0.304	0.219	0.444	0.216	0.654	-0.062	-0.126	0.253	0.246
Manufacturing average	\$396.88	0.369	0.211	0.437	0.215	0.648	-0.047	-0.121	0.252	0.15
Nonmanufacturing average	\$368.65	0.511	0.119	0.365	0.127	0.691	0	-0.038	0.212	0.251

Note: Changes in weekly earnings are changes in ln (earnings). See table 3.4 and appendix table D.4 for high and low import-competing industries.

Source: Author's calculations from the Displaced Worker Surveys, 1984-2000, using Current Population Survey sampling weights.

Table D.4 Characteristics of low import-competing industry workers, rank ordered by number of workers displaced, 1979-99

Industry	Mean		Share		Share with tenure > 10 years		Change in weekly earnings		Share with earnings loss > 30 percent		Share with joblessness > 26 weeks
	old job earnings	female	Dropouts	high school Graduates	years	reemployed	Median	Mean	loss > 30 percent	loss > 30 percent	> 26 weeks
Printing, publishing	\$385.24	0.487	0.092	0.419	0.157	0.67	-0.048	-0.209	0.269	0.269	0.197
Fabricated structural metals	\$380.48	0.166	0.199	0.484	0.183	0.695	0	-0.123	0.288	0.288	0.206
Meat products	\$312.18	0.379	0.287	0.48	0.202	0.665	-0.188	-0.216	0.331	0.331	0.276
Newspaper	\$314.99	0.559	0.033	0.327	0.148	0.734	0.075	0.012	0.181	0.181	0.252
Cement, concrete, gypsum	\$421.56	0.148	0.229	0.442	0.239	0.613	-0.155	-0.25	0.351	0.351	0.242
Paperboard	\$354.53	0.362	0.267	0.455	0.193	0.633	-0.143	-0.206	0.286	0.286	0.169
Soaps and cosmetics	\$385.74	0.527	0.204	0.497	0.274	0.523	-0.082	-0.253	0.279	0.279	0.241
Miscellaneous paper	\$396.29	0.36	0.213	0.467	0.211	0.687	0.003	-0.255	0.264	0.264	0.317
Bakery	\$325.72	0.388	0.256	0.448	0.227	0.641	-0.028	-0.21	0.254	0.254	0.194
Dairy products	\$380.05	0.228	0.19	0.521	0.298	0.626	-0.083	-0.257	0.319	0.319	0.27
Wood and mobile buildings	\$303.18	0.209	0.356	0.466	0.042	0.75	-0.13	-0.088	0.243	0.243	0.145
Grain milling	\$392.37	0.257	0.169	0.369	0.345	0.692	-0.021	-0.03	0.231	0.231	0.218
Logging	\$445.42	0.086	0.35	0.441	0.171	0.649	-0.078	-0.131	0.242	0.242	0.176
Paints, varnishes	\$441.91	0.282	0.148	0.419	0.425	0.671	-0.007	-0.077	0.17	0.17	0.202
Tobacco	\$480.61	0.303	0.196	0.641	0.449	0.59	0.155	-0.223	0.151	0.151	0.324
Low import-competing average	\$375.11	0.351	0.182	0.446	0.194	0.668	-0.027	-0.086	0.251	0.251	0.219
Manufacturing average	\$396.88	0.369	0.211	0.437	0.215	0.648	-0.047	-0.121	0.252	0.252	0.15
Nonmanufacturing average	\$368.65	0.511	0.119	0.365	0.127	0.691	0	-0.038	0.212	0.212	0.251

Note: Changes in weekly earnings are changes in ln (earnings). See table 3.4 and appendix table D.3 for high and medium import-competing industries.

Source: Author's calculations from the Displaced Worker Surveys, 1984-2000, using Current Population Survey sampling weights.

Table D.5 Coefficient estimates from logit estimation of survey date employment, full sample

Characteristic	(1)	(2)	(3)
Manufacturing (nondurable goods)	-0.2715** (0.0879)	-0.1262* (0.0589)	-0.1242** (0.0481)
Manufacturing (durable goods)	-0.1313* (0.0590)	-0.1043* (0.0456)	-0.1955** (0.0433)
Transportation, communications, utilities	-0.0443 (0.0804)	-0.0122 (0.0671)	-0.1197 (0.0658)
Age at displacement (years)			
20-24		0.4330** (0.0498)	0.3932** (0.0507)
25-34		0.5053** (0.0361)	0.4857** (0.0364)
35-44		0.5095** (0.0448)	0.5084** (0.0455)
Education			
High school graduate		0.4872** (0.0366)	0.5156** (0.0376)
Some college		0.7367** (0.0378)	0.7490** (0.0390)
College degree or higher		1.1490** (0.0416)	1.1241** (0.0421)
Job tenure (years)			
Less than 3		0.0489 (0.0477)	0.0880 (0.0489)
3-5		0.1734** (0.0464)	0.2139** (0.0481)
6-10		0.1353** (0.0478)	0.1689** (0.0489)
Displaced from full-time job		0.4693** (0.0436)	0.3605** (0.0419)
Minority		-0.4895** (0.0378)	-0.4751** (0.0381)
Married		0.0891** (0.0323)	0.0538 (0.0310)
Female			-0.4494** (0.0283)
Year displaced			
1979-80	-0.3471** (0.0689)	-0.3442** (0.0726)	-0.3400** (0.0704)
1984-89	0.2583** (0.0390)	0.2480** (0.0378)	0.2617** (0.0380)
1990-92	0.2318** (0.0395)	0.1686** (0.0415)	0.1771** (0.0413)
1993-99	0.8058** (0.0430)	0.7911** (0.0438)	0.8190** (0.0446)
Years since displacement	0.3763** (0.0165)	0.3658** (0.0176)	0.3716** (0.0175)
Constant	-0.4137** (0.0587)	-1.8051** (0.0944)	-1.5017** (0.0971)
Observations	35,435	35,222	35,222

*significant at 5 percent; **significant at 1 percent.

Note: Robust standard errors in parentheses.

Table D.6 Coefficient estimates from logit estimation of survey date employment, manufacturing sample

Characteristic	(1)	(2)	(3)	(4)
High import-competing	-0.1789*	-0.1528**	-0.0912	-0.0917
	(0.0854)	(0.0547)	(0.0573)	(0.0591)
Medium import-competing	-0.0296	0.0009	-0.0134	-0.0176
	(0.0700)	(0.0623)	(0.0557)	(0.0559)
Age at displacement (years)				
20-24		0.4755**	0.4184**	0.4733**
		(0.0929)	(0.0909)	(0.0924)
25-34		0.5291**	0.4974**	0.5265**
		(0.0607)	(0.0607)	(0.0598)
35-44		0.4937**	0.4831**	0.5003**
		(0.0807)	(0.0824)	(0.0825)
Education				
High school graduate		0.4646**	0.4712**	0.4844**
		(0.0523)	(0.0531)	(0.0540)
Some college		0.6443**	0.6171**	0.6160**
		(0.0564)	(0.0569)	(0.0588)
College degree or higher		1.2019**	1.1327**	1.1281**
		(0.0727)	(0.0768)	(0.0774)
Job tenure (years)				
Less than 3		0.1868**	0.2553**	0.2752**
		(0.0596)	(0.0621)	(0.0632)
3-5		0.2849**	0.3496**	0.3712**
		(0.0663)	(0.0684)	(0.0700)
6-10		0.2887**	0.3362**	0.3546**
		(0.0618)	(0.0614)	(0.0626)
Displaced from full-time job		0.4942**	0.3628**	0.3209**
		(0.1306)	(0.1351)	(0.1336)
Minority		-0.4917**	-0.4542**	-0.4690**
		(0.0597)	(0.0614)	(0.0616)
Married		0.1719**	0.1259**	0.4745**
		(0.0438)	(0.0429)	(0.0636)
Female			-0.4649**	0.0104
			(0.0495)	(0.0605)
Female × married				-0.7854**
				(0.1174)
Year displaced				
1979-80	-0.4238**	-0.4331**	-0.4207**	-0.4248**
	(0.0948)	(0.1053)	(0.1012)	(0.1002)
1984-89	0.2998**	0.3212**	0.3301**	0.3352**
	(0.0537)	(0.0515)	(0.0528)	(0.0549)
1990-92	0.2412**	0.2154**	0.2179**	0.2190**
	(0.0588)	(0.0614)	(0.0588)	(0.0597)
1993-99	0.7896**	0.8205**	0.8431**	0.8583**
	(0.0687)	(0.0750)	(0.0757)	(0.0780)
Years since displacement	0.4133**	0.4137**	0.4172**	0.4164**
	(0.0224)	(0.0249)	(0.0255)	(0.0254)
Constant	-0.6097**	-2.1699**	-1.8902**	-2.1190**
	(0.0841)	(0.1639)	(0.1542)	(0.1566)
Observations	13,846	13,795	13,795	13,795

*significant at 5 percent; **significant at 1 percent.

Note: Robust standard errors in parentheses.