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WHAT DO WE KNOW ABOUT WORKER
DISPLACEMENT IN THE U.S.?

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ABSTRACT

In the United States roughly one-half million workers with 3+ years on the job have become unemployed each year during the 1980s because of plant closings. There is evidence that this represents an increase over earlier periods of similar macroeconomic conditions. Wage cuts within the observed range lower only slightly the probability that a plant will close. The average loss of earnings, due to long spells of post-displacement unemployment and to subsequent reduced wages, is substantial. While minorities suffer an above-average rate of displacement, the earnings losses they experience upon displacement are not disproportionately high. Women and older workers are no more likely than others to become displaced, and their losses are not disproportionate; but workers who have been on the job longer lose more.

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Worker displacement---job loss among workers with significant labor-force attachment---has attracted sharply increased attention from policy-makers and recently from economists too. Proposals for advance notification of plant closings and large increases in funds for training displaced workers are among the responses in the U.S. to what is perceived to be a new unemployment problem. Who are the displaced workers? How do they differ from the unemployed in general? Has there been an upward trend in their number that is distinct from the higher unemployment of the 1970s and 1980s? To what extent do wage cuts reduce the likelihood of displacement? What is lost when a worker is displaced? I answer these questions by examining recent data and research.

I. Counting Displaced Workers: Demographics and Trends

Substantial debate has arisen over which workers are to be classified as displaced. From the most restrictive definition---trade-displaced, long-tenure workers whose plants closed, to the least restrictive---all laid-off workers, the estimated number of displaced workers varies tremendously. Some of the confusion on this issue was removed by special supplements that were added to the January 1984 and January 1986 Current Population Surveys (CPS) that asked workers if they had lost their jobs during the previous five years. These Displaced Worker Surveys (DWS) produced counts for 1979-83 and 1981-85.

The federal government (Flaim-Sehgal, 1985) has settled on the admittedly arbitrary definition of displaced workers as those who lost jobs that they had held for three or more years either due to slack work, abolition of the job or closing of the plant. By this

Table 1

Incidence of Displacement Among Workers
Aged 20+, 1981-85 (percent)

<u>Age</u>	Men	Women
20+	6.2	4.4
20-24	2.0	1.2
25-54	6.9	4.7
54-64	7.2	6.6
65+	4.9	7.1

<u>Industry</u>	
Durable manufacturing	14.8
Nondurable manufacturing	10.8
Services	1.9
Construction	5.4

<u>Race or Ethnicity</u>	Men	Women
Blacks	7.0	6.1
Hispanics	7.0	5.3

<u>Occupation</u>	
Managerial and professional	3.3
Technical, sales, etc.	3.8
Precision production, etc.	8.5
Operatives, etc.	15.6
Service workers	2.2

TOTAL	5.4
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Computed from Employment and Earnings,
January 1984, and F. Horvath, "The Pulse of
Economic Change," Monthly Labor Review, June
1987, 102, 3-12.

criterion 5.1 million workers were displaced during 1979-83, with the same number counted as displaced during 1981-85. Although this definition has become standard, and though it provides the basis for disaggregation in published data, it is too broad. Abolition of one's job or slack work are subjective notions that receive subjective responses in the CPS. "Slack work" can be used as an excuse to rationalize one's job loss, as can "position abolished." Counting only workers whose plants closed leaves 2.5 million workers displaced during 1979-83, and 2.8 million displaced during 1981-85. Even with this restrictive definition---workers with at least three years of job tenure whose plants closed---over one-half million workers per year were displaced during the 1980s.

Using the official definition gives the impression that there is distinct nonrandomness in the incidence of displacement. Table 1 shows the ratio of the number of workers displaced during 1981-85 to total employment during 1983 in various demographic and industry groups. Displacement is more likely among men than among women; among blacks and Hispanics than among non-Hispanic whites; and especially among manufacturing workers. Despite popular myth, and despite the definitional requirement that a worker have at least three years of job tenure, older male workers (those aged 55-64) are no more likely to be displaced than workers aged 25-54. Other data show displacement more likely in the Northeast and North Central regions during this period.

The official data do not provide a good indication of whether increased interest in displacement is the result of any change in the magnitude of the problem. They imply that the number of

workers displaced in 1979 and 1980 was about the same as in 1984 and 1985. Fortunately, the Panel Study of Income Dynamics (PSID) asks respondents whether they left jobs because the plant closed. Defining displaced workers as those (regardless of job tenure) whose plants closed, weighted averages of the data for each year during 1968-81 show very clearly that there was an increase in the rate of displacement (Hamermesh, 1983). For example, during the 1974-75 recession the displacement rate averaged 1.6 percent per year; during the much milder 1980-81 recession it averaged 2.5 percent. During 1971-72 and 1978-79, periods of expansion with almost identical aggregate unemployment rates, displacement rates in the PSID sample averaged 1.6 and 2.0 percent respectively. These data suggest that the increased public attention to worker displacement reflects the growth of this labor-market phenomenon.

II. Labor Costs and the Likelihood of Displacement

The increase in the incidence of displacement provokes two questions: 1) What causes plants to close, and, in particular, why do workers not accede to cuts in labor costs that allow the plant to remain open? and 2) What changes in the displacement process have produced the increase? Plant closings must be handled by a theory that focuses on the standard items that affect labor demand---labor costs, technology and product price---modified to account for the discreteness of the plant-closing decision.

Despite the much-touted nominal wage cuts of the early 1980s, they were really quite rare. Except during 1983, cuts were accepted by no more than 5 percent of workers covered by major union contracts from 1981-85 (Mitchell, 1985); and some of these

wage cuts were accompanied by offsetting increases in the cost of employee benefits. Given the pressures of foreign and domestic competition on these and other workers, the paucity of wage cuts is perhaps surprising.

The relationship between the probability of a plant closing and the wage can be viewed as part of an implicit contract between the firm and its workers. The firm earns the same expected profits given a particular distribution of stochastic product prices while offering workers a package of higher wages and a greater likelihood of plant closing. Workers can be compensated for a greater risk of closing by higher wages. With a demand shock (a leftward shift in the distribution of product prices) equilibrium is reestablished with lower wages and a higher likelihood that the plant closes.

Using PSID data for 1977-81, Hamermesh (1986) finds a negative relationship between the probability that a worker loses a job in a plant closing and the worker's wage in the last year on the job (adjusted for the worker's demographic characteristics and human capital). Hence, those workers whose wages were higher, other things equal, are less likely to experience plant closings. (Similar results have been produced by Dickens-Lang (1987) comparing CPS data for 1973 and 1981.) Demand shifts dominated movements along the labor-demand curve in determining the incidence of displacement. Holding demand conditions constant, though, higher wages did increase the likelihood of displacement, with an analogue to the constant-output labor-demand elasticity equal to $-.4$, well in line with estimates of conventional demand elasticities.

Workers could accept wage cuts and thereby reduce the probability of the plant closing. That they do not is the rational outcome of their realization that the wage cut guarantees a reduction in their welfare. Plant closings are a low-probability event whose major cause is product-market shocks that will swamp the beneficial impact the wage cut might have on the probability of closing. This conclusion is corroborated by Grossman's (1986) study of the basic steel industry, where many plants have closed and production-worker employment decreased from 448,000 in 1979 to 216,700 in 1986. Based on an expanded time-series labor-demand equation, wage changes during this period accounted for essentially none of the decline in employment. Part was explicable by changes in the terms of trade and by the slow growth of real incomes in the U.S. Nearly half of the decline could not be attributed to either of these causes, and must instead have resulted from other causes, perhaps very rapid labor-saving technical change.

III. The Losses from Displacement

The size and incidence of the losses---in terms of lost work time and wages---have been the most thoroughly studied aspects of job displacement. Measuring them is important both to inform decisions about the desirability of ameliorative or preventive policies, and for structuring policies appropriately.

One must consider the distinction between the private and social costs of displacement. At the simplest level, which has been accounted for in some of the studies we discuss, there is a need to net out transfer payments when calculating private losses. At a

slightly less simple level, which has been recognized in a few studies, one needs to distinguish between income streams that are lost because specific investments become worthless unexpectedly early when displacement occurs, and those that disappear when rents are wiped out. The former, including the returns to firm-, and perhaps industry- and location-specific capital, represent the social cost of moving toward a new labor-market equilibrium. The latter, including rents accruing to beneficiaries of discrimination and union-induced job queues, are not a social cost. At a more complex level the losses incurred by the individuals studied are part of a general equilibrium response to shocks. No study has attempted to compare the private losses of these individuals to the labor-market impacts on other workers. Many early case studies and one recent one (Folbre et al, 1984) did, though, examine the impacts of plant closings on particular labor markets. Other work has demonstrated the huge rate of both plant closings and openings relative to net changes in employment (Leonard, 1987).

Even the estimation of the private wage and employment losses incurred by the few individuals studied requires care. Unemployment and subsequent wages of displaced workers depend on their search behavior. Workers whose reservation wages decline more slowly with unemployment duration will have a lower likelihood of reemployment and a higher post-displacement wage. This does not mean that the unemployment is voluntary, any more than the contracting approach discussed in Section II implies that workers choose to have their plants close. Rather, the unemployment is the involuntary result of an exogenous shock; but the incidence of

unemployment and the wage loss are endogenously determined. They vary with workers' characteristics, whose effects on search behavior must be modeled or somehow accounted for to discover the incidence of the private losses attributable to the shocks. All but two of the studies that consider this problem "solve" it by including a selectivity correction that is not carefully modeled. This difficulty casts some doubt on many of the studies, especially since there is clear evidence that exit rates of displaced workers from unemployment show negative duration dependence. This is a particular problem in studies that use workers' post-displacement experience without concern for their heterogeneity.

Empirical work in this area is hardly new; but it took off in the past ten years, and exploded in the last three years with the analysis of data sets covering broadly representative samples of displaced workers. Twelve studies using such U.S. data are summarized in Table 2. The first three are based on special surveys of displaced workers. The underlying data are retrospective, so that data on pre-displacement experience may contain substantial measurement error and biases; but the data have the virtue of focusing on a narrowly-defined study group. Five of the studies used the 1979-84 DWS, which has the virtue of producing large samples, but the severe drawback of providing only retrospective data. The remaining studies use the two major U.S. longitudinal data sets. Neither has problems with retrospective data; but the PSID provides very small samples of displaced workers, and the NLS does not allow one to identify workers whose plants closed. Clearly, currently there is no set of data that is a very

Table 2

Survey of Studies of Displacement

Study and Sample	Results
Bale (1976) Trade-displaced, 1969-70, interviewed 1972	Social loss = \$1,200-\$7,600 1972\$
Neumann (1978) Trade-displaced, 1970-73, interviewed 1975	Increased unemployment, decreased post-wage with tenure
Corson-Nicholson (1981) Permanent layoff, 1976, interviewed 1978-79	Increased unemployment duration with tenure; earnings loss = \$9,000 1978\$
Madden (1987) DWS, 1983, displaced	Greater wage loss for women, greater tenure, less education, change industry, white
Podgursky-Swain (1987a) DWS, displaced 1979-82	Reduced unemployment duration if plant closing, if nonunion; negative duration dependence
Podgursky-Swain (1987b) DWS, 1979-84	Greater wage loss with tenure, with industry or occupation change, low education
Addison-Portugal (1986) DWS, 1979-84, full-time	Greater wage loss with tenure, industry or occupation change (but <u>not</u> location change); no age effect; negative unemployment duration dependence
Kletzer (1987) DWS, only plant closing or position abolished	Greater wage loss with tenure (but some effect of tenure on post-wage except for blue- collar men), among men
Hamermesh (1987) PSID, 1977-81, only plant closing	Lost job-specific capital = \$7,000 1980\$; wage-tenure profile unvarying before displacement
Ruhm (1987) PSID, 1971-80, job loss, others, 1971-75	No permanent unemployment effect of job loss; no effect of age or tenure
Blau-Kahn (1981) NLS young men, young women, 1969-72 permanent layoffs, others	Greater wage loss among men, whites; lower reemployment among blacks
Sandell-Shapiro (1985) NLS older men, 1966-78	Greater wage loss if over 65, with tenure, if black

satisfactory vehicle for measuring the incidence and amount of wage and earnings losses.

The DWS data demonstrate that the median reemployed displaced worker suffered a real wage reduction of between 5 and 15 percent (depending on the sample chosen). The median displaced worker who found a job was unemployed for as much as 40 weeks (among female workers in one sample). Estimates of the present value of average earnings losses (in 1980\$) over the remainder of the worker's expected lifetime range from slightly more than \$1,500 to over \$10,000. All of these are gross estimates for displaced workers only, unadjusted for the effects of workers' search behavior and for the possible impacts of displacement on other workers.

Despite difficulties with data and lack of proper concern with issues of job search, we can draw some conclusions about the correlates of the losses from this large body of empirical research. Most clearly and most relevant for policy, workers who had greater tenure on the job from which they were displaced suffered the greatest losses of subsequent wages and time employed. Patterns of wage-tenure relationships before plant closings (Hamermesh, 1987) suggest this finding is not an artifact produced by search behavior. Whether it reflects the loss of firm-specific capital or the destruction of successful job matches is not clear; but long-tenure workers are made especially worse off by displacement. Though the evidence is less strong, because of possible contamination by search behavior, workers who change occupation or industry suffer greater losses than otherwise identical workers.

All the studies that consider the issue show that less educated workers spend more time unemployed and suffer disproportionate wage losses. Here the problem of search behavior severely confounds the results, for access and ability to process labor-market information is probably related to education level. Blue-collar workers also suffer larger-than-average losses. Various studies also stress correlations between earnings loss and such demographic characteristics as age, sex and race; but for each such study another finds the opposite correlation. Based on all the available studies there is no basis for concluding that particular groups, such as women or minorities, suffer especially large losses from being displaced (though minorities are more likely to be displaced).

A particularly careful study (Ruhm, 1987) demonstrates that there is no long-term employment effect of displacement once one accounts for worker heterogeneity. No similar study has been done on long-term wage effects; but the large wage gains generally made by labor-force reentrants (Mincer-Ofek, 1982) suggest that much of the wage loss may not be permanent either. These results imply that projecting streams of wage and/or employment losses will lead to overestimates of the present value of the private loss.

IV. Conclusion

There is always substantial job displacement in a dynamic developed economy; but displacement has shown a secular increase in the U.S. that is independent of the business cycle. Wage cuts have only small impacts in reducing the likelihood of displacement. The

social costs of displacement are unknown, but that there are large private costs is well demonstrated. These costs are especially large to workers with greater job tenure, but they are mostly not long-term. There is no evidence that they are perfectly offset by prior compensating wage differentials. That the adjustments that engender them produce a net gain to society argues in favor of offsetting labor-market policy if we can be fairly sure that the disincentives produced are not great.

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