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Declining labor turnover in the United States: evidence and implications from the Panel Study of Income Dynamics

A growing body of literature points to a decline in employment dynamics in the United States. While aspects of this phenomenon have been documented, its causes remain murky. I examine job-to-job transitions using the Panel Study of Income Dynamics, a dataset that allows users to classify transitions as voluntary or involuntary. This distinction is important for identifying causes of the decline in transitions and for assessing the benefits and costs of changes in labor market fluidity. Using this data, I find that the aging of the workforce is responsible for nearly three-fifths of the measured decline in job-to-job transition rates.

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A growing body of literature points to a decline in employment dynamics[1] in recent decades in the United States. In other words, the labor market has become less "fluid."[2] For example, Henry R. Hyatt and James R. Spletzer,[3] using four different datasets to calculate five different measures of employment dynamics—including both job and worker reallocation rates[4]—from 1998 to 2010, found declines ranging from 11 percent to 53 percent.[5] Other researchers have also documented a decline in labor market turnover.[6]

There are several reasons to be concerned about declines in employment dynamics. As Raven Molloy, Christopher L. Smith, Riccardo Trezzi, and Abigail Wozniak note, if the declines are occurring because of increased costs associated with employment transitions, this could lead to a less optimal allocation of resources.[7] In general, one would expect greater dynamism to lead to faster economic growth "through the Schumpeterian creative destruction process of new and expanding businesses replacing the market share of established companies, as well as the ongoing efforts of businesses and workers seeking their most productive matches."[8]

Lower job and worker reallocation rates are likely to mean that new job opportunities are slower to arrive. For those unemployed, job spells may last longer. For those employed, there are fewer opportunities to switch jobs. Job switching is an important factor in wage growth, particularly for young workers.[9] The recent slowing of job-to-job transition rates is one possible reason that, following the Great Recession, wage growth has been weak.[10]

Nonetheless, reduced employment dynamism may have some positive effects. It could reduce uncertainty and allow workers to feel more secure in their jobs. Less dynamism may also decrease the likelihood of becoming unemployed and suffering the negative earnings effects of displacement.[11] The extent to which these benefits are likely to occur depends on the source of the reduction in turnover. For example, decreased turnover because of stronger worker–firm relationships, perhaps because workers and firms are matching better or because employers are investing more in their employees, would benefit the economy as a whole.[12]

Understanding the causes of changing employment dynamics may provide insights into other phenomena. For example, interstate migration in the United States has been declining since the 1980s. Molloy, Smith, and Wozniak find evidence consistent with a worsening of the distribution of outside job offers, which would make labor market transitions and accompanying geographic transitions less attractive.[13] In another example, Jordi Gali and Thijs van Rens propose that declining labor market turnover, and the resultant easing of labor market frictions, is responsible for three changes in postwar U.S. macroeconomic dynamics:

(1) A decline in the correlation between labor productivity and output

(2) An increase in the volatility of labor input relative to that of output

(3) An increase in the volatility of real wages, in both relative and absolute terms[14]

While the decline in employment dynamics has been measured and documented in many different ways, its causes have received less attention. Demographic changes, including the aging of the U.S. workforce and compositional shifts on the employer side, have explained little about the decline in fluidity.[15] Several theories have been offered, but many either have not been scrutinized heavily or supported empirically. Steven J. Davis and John Haltiwanger speculate that, by raising the cost of occupational mobility, the rise in the proportion of employment requiring an occupational license has contributed to the decline in employment dynamics.[16] However, according to Molloy, Smith, Trezzi, and Wozniak, such licensing is not related to geographic mobility at the state level, making it less likely that it would be related to other measures of fluidity.[17] Isabel Cairó has proposed that the increasing importance of on-the-job human capital accumulation, which primarily comes about through training, may be responsible for the decline in employment dynamics.[18] However, according to a study by C. Jeffrey Waddoups, employer-provided training declined in the 2000s.[19]

To get a fresh perspective on trends in employment dynamics, I address job-to-job transitions, an important aspect of labor market turnover, using a dataset that has been rarely used in recent studies of labor turnover, the Panel Study of Income Dynamics (PSID).[20] PSID data is useful in this type of research for several reasons.

First, the data allows users to classify transitions as voluntary or involuntary, something that cannot be done with other household surveys.[21] This voluntary–involuntary distinction can provide important clues about the causes of underlying changing dynamics. If voluntary job switches are declining, factors shaping the distribution of outside job opportunities might be responsible. If, however, involuntary movements are slowing, factors spurring worker displacement, such as globalization and technological change, are more likely to have a role. Further,

distinguishing between these two types of transitions makes it possible to assess how changes in labor market fluidity affect workers directly involved, as voluntary transitions tend to increase wages and involuntary transitions tend to decrease them.[22]

Second, it is possible to construct a relatively long time series of job-to-job transition rates with the PSID. The longer the time series, the easier it is to separate tendencies caused by the business cycle from those that are due to long-term trends.

Third, in contrast to some datasets used to examine employment dynamics, the PSID has demographic data, as well as data on industry and occupation. These data allow tests of whether changes in both the composition of the workforce and the composition of industrial and occupational demand have contributed to the overall trends.

The Panel Study of Income Dynamics

The PSID, a longitudinal survey of a representative sample of U.S. individuals and their families, began with a sample of about 4,800 families in 1968. Data were collected annually through 1997, but have been collected biannually since. Each time the PSID is fielded, it is termed a wave. Because the PSID was originally based on two subsamples, one of which oversampled the low-income population, weights are required to create estimates that are representative of the U.S. population. In statistical inference, it is important to account for the complexity of the survey design.

Since 1969, the second wave of the PSID, questions have been asked about labor market mobility; specifically, respondents are asked why they left previous jobs held at the time of the last interview. In 1969, family heads, which in the PSID are defined to be men unless no men are present, both employed and unemployed at the time of the interview, were asked the following:

“What happened to the job you had before—did the company fold, were you laid off, or what?”

Answers were recorded verbatim and then grouped into several categories.

While it would have been desirable to have a time series going back to the 1969 wave, I did not create one for this study for several reasons. First, wives are not asked the relevant questions until 1979, so including the earliest years would distort the sample on the basis of gender. Second, the timeframe referenced in the “previous jobs” question is not consistent over the years. From 1969 through 1983, respondents were asked about previous jobs they held during the preceding 12 months. In later years, respondents were asked about previous jobs they held from the start of the preceding calendar year to the time of the interview. Third, the “previous jobs” question has undergone changes that created a break in the series. From 1988 on, the question refers only to leaving a previous employer. Previous iterations, from 1975 to 1988, accounted for promotions and other position changes within a company.

For the reasons outlined above, my analysis begins with the 1988 wave. Of the various labor market transitions one could consider, I focus on those involving job-to-job transitions, rather than those involving transitioning from jobs to other nonemployment statuses, because the universe for the questions for individuals not currently employed is not consistent over time. From 1988 through 2001, employed family heads and wives who had a previus employer sometime between the preceding calendar year and the survey date were asked the following:

“What happened with that employer—did the company go out of business, were you laid off, did you quit, or what?”

Starting in 2003, however, there was a redesign of the employment sections for both family heads and wives. Instead of only asking about the previous job, the survey adopted an event-history format, which allowed information on more than two jobs. This change continued through the last wave used in the analysis, 2013. Even though the wording of the question was not modified significantly, the calculated transition rates show a break in the series that artificially created significantly higher rates of transition. Nonetheless, I include the 2003-13 period in my analysis, but I account for the break in the series.

My analysis includes all 18 waves of the PSID, from 1988 through 2013 (the latest that was available when I began the analysis). The information needed for the analysis is only available for family heads and spouses. The sample is limited to those who were working, not employed in military industries or occupations, and not self-employed (neither in the current job nor in the previous one, if one was held over the past year). If respondents had a previous job, they were asked why they left that job, and their answers were used to code their transition. In order to be consistent with administrative data (which lacks demographic information, including age), I did not restrict the sample on the basis of age. PSID family weights are used.

Reasons for leaving an employer: voluntary, involuntary, and uncertain

The PSID groups the reasons for leaving an employer into seven categories:

(1) Company folded/changed hands/moved out of town; employer died/went out of business

(2) Strike; lockout

(3) Laid off; fired

(4) Quit; resigned; retired; pregnant; needed more money; just wanted a change

(5) Other; transfer; any mention of armed services

(6) Job was completed; seasonal work; was a temporary job

(7) Not available or don’t know

Classifying these reasons as voluntary or involuntary is a matter of subjective judgment. The first three categories are involuntary,[23] the fourth is voluntary, the seventh is unknown, and the remaining two (fifth and sixth) are debatable.[24] Sorting out these categories is necessary in order to create the three classification schemes that I use in this analysis.

In the first classification scheme, I chose to group the fourth and fifth categories as voluntary, partly because the fifth category mentions armed services. The sixth category (seasonal and temporary work) is grouped with the seventh category (unknown) as “uncertain.”

In the second classification scheme, I used a strategy similar to that employed by James Monks and Steven D. Pizer, in their study of voluntary and involuntary job turnover.[25] In that study, layoff, plant closed, end of temporary job, discharge, and program ended are considered involuntary, while all other reasons are classified as voluntary.[26] Thus, the difference between my first two schemes is that there is an “uncertain” category in the first

one but not the second one. In the second scheme, seasonal work is classified as involuntary and unknown reasons are classified as voluntary. In the third scheme, the categories grouped as “uncertain” under the first scheme are excluded from the analysis.

To provide a better sense of the differences across the three classification schemes, table 1A displays the components of each of them. Table 1B presents the frequency distribution (weighted) of the reasons for leaving a job. Nearly two-thirds of those who left a job fall into the category that includes quits. This category is considered voluntary under all schemes. The next most common reason for leaving a job is laid off or fired (13.53 percent), which is always considered involuntary. The category that includes seasonal work (6.55 percent) comes next. As noted earlier, the category is in the “uncertain” group in the first scheme, involuntary in the second scheme, and excluded in the third. The company folding, and related reasons, accounts for 5.50 percent of job exits. This category is always considered involuntary. Unavailable reasons account for 5.43 percent of job exits and are classified as uncertain in the first scheme, voluntary in the second scheme, and excluded in the third scheme.[27] “Other” reasons, which are considered to be voluntary in all schemes, account for 2.84 percent. Finally, strikes and lockouts, which are involuntary in all schemes, account for a negligible portion (0.02 percent) of the results.

Table 1A. Reasons for leaving job, by classification scheme

Reason	Scheme 1			Scheme 2		Scheme 3
	Involuntary	Voluntary	Uncertain	Involuntary	Voluntary	Involuntary
Company folded/changed hands/moved out of town; employer died/went out of business	X			X		X
Strike; lockout	X			X		X
Laid off; fired	X			X		X
Quit; resigned; retired; pregnant; needed more money; just wanted a change		X			X	
Other; transfer; any mention of armed services		X			X	
Job was completed; seasonal work; was a temporary job			X	X		
Not available or don’t know			X		X	

Source: Panel Study of Income Dynamics.

Table 1B. Frequency distribution of reasons for leaving job

Reason	Percent
Company folded/changed hands/moved out of town; employer died/went out of business	5.50
Strike; lockout	0.02
Laid off; fired	13.53
Quit; resigned; retired; pregnant; needed more money; just wanted a change	66.13
Other; transfer; any mention of armed services	2.84
Job was completed; seasonal work; was a temporary job	6.55
Not available or don’t know	5.43

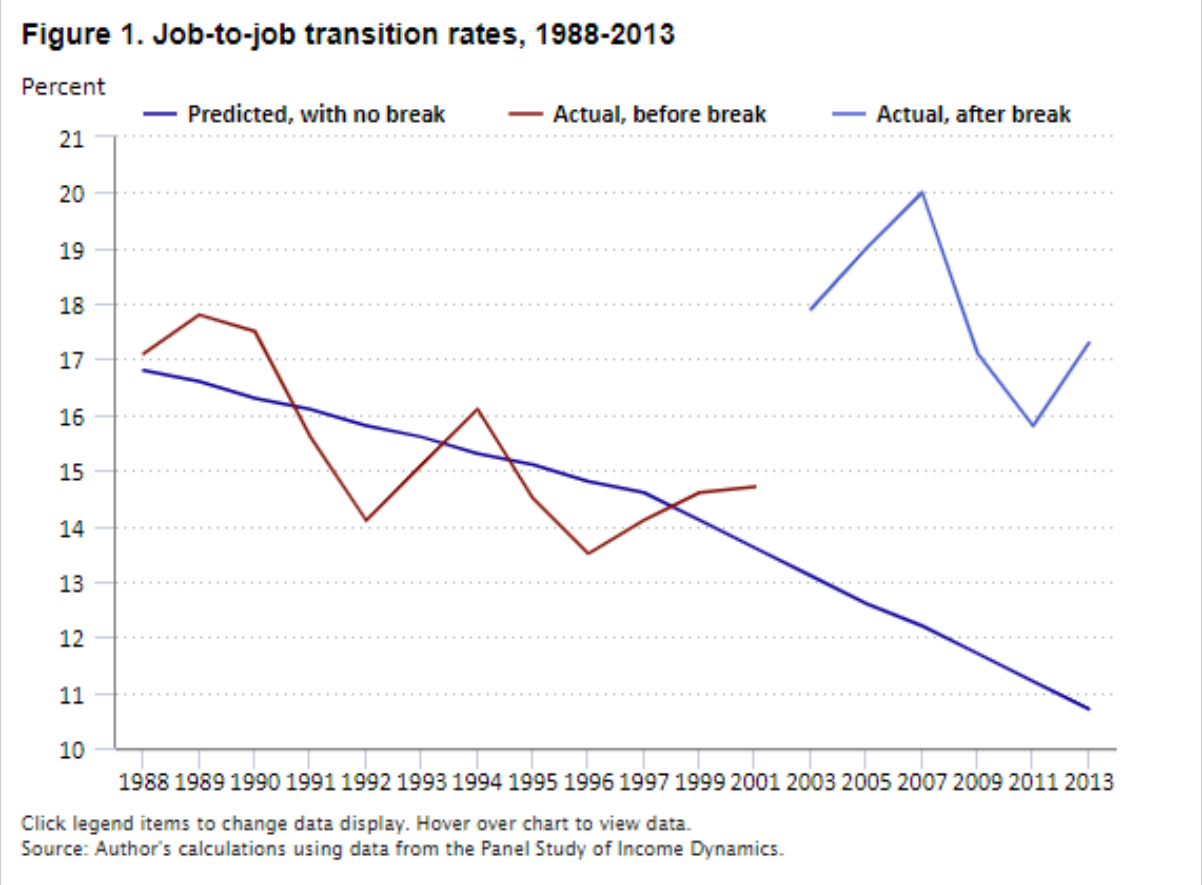
Source: Author's calculations using data from the Panel Study of Income Dynamics, 1988–2013.

The frequency distribution in table 1B shows that voluntary transitions are much more common than involuntary ones. Under the first classification scheme, voluntary transitions account for 68.97 percent of all shifts, involuntary transitions account for 19.05 percent, and those in the remaining category for 11.98 percent. Under the second scheme, voluntary transitions account for nearly three–quarters (74.40 percent) of all responses, compared with 25.60 percent for involuntary transitions. Similarly, in the third scheme, the voluntary category makes up 78.36 percent of reasons, versus 21.64 percent for involuntary transitions.

Trends in job-to-job transition rates

In this section, I examine how job-to-job transition rates have trended from 1988 to 2013, in part to see if patterns in the PSID are similar to those of other time series measuring employment dynamics during this period, which tend to show a downward trajectory.[28] Before doing so, it may be helpful to further examine job-to-job transitions within the context of labor market flows that have received more attention in earlier studies of employment dynamics. Such flows can be examined either from an employer's or a worker's perspective. From the worker's perspective, flows are typically divided into hires and separations. Workers who are newly hired can come from out of the labor force, from unemployment, or from another job, with those movements in the last-mentioned category being counted as job-to-job transitions. On the separations side, the situation is similar to that on the hires side, where those leaving an employer flow out of the labor force, into unemployment, or into another job. Once again, the last-mentioned category is job-to-job transitions.

I measure job-to-job transitions as a proportion of those who are currently working at the time of the survey. Figure 1 displays the aggregate annual job-to-job transition rates for each of the 18 years in which the PSID conducted a survey during the 1988-2013 period. The transition rate ranges from 13.5 to 17.8 percent before the break in series and from 17.9 percent to 20.0 percent after the break. If this were a long, unbroken series, its plot would reveal its tendencies and, absent any large deviations in the series, one could calculate its change from the beginning of the period to the end. For example, Hyatt and Spletzer consider several quarterly series from 1998 to 2010 and calculate a proportion change from the beginning of the period to the end.[29] To do so, they use the formula $100 * (B - A)/((A + B)/2)$, where A represents the value at the beginning of the period and B represents the value at the end of the period.



As noted, there are only 18 points in this time series, its frequency changes from annual to biennial after 1997, and there is a break in the series before 2003. As a result, 6 of the 18 points come after the break. As figure 1 shows, the transition rate increased sharply in 2003, the year in which the employment section of the PSID was redesigned. To both account for this break in the series and determine a time trend, I run a regression of a variable measuring job-to-job transitions on a variable for time trend and a variable for the break in the series, which takes a value of 0 prior to the break and a value of 1 after the break.[30] I then use the coefficients of this regression to calculate the change from the beginning of the end of the period. The constant and the coefficient on time are employed to predict the value of the transition rate at the beginning of the period (1988, when time = 1). These coefficients are then used to predict the value of the rate at the end of the period, 2013, under the assumption that the break never occurred. The predicted change between the 2 years divided by the average predicted value of the 2 years yields the proportion change.

For the overall job-to-job transition rate, the coefficients, shown in table 2, imply that the transition rate declined from 16.8 percent to 10.7 percent. This 6.1-percentage-point reduction represents a statistically significant decline of 44.5 percent.[31] A key question is the extent to which this decline may be attributed to voluntary transitions, involuntary transitions, or both. To address this issue, I run the same time-trend regression, with allowance for a break in the time series, for the component job-to-job movements (i.e., voluntary, involuntary and uncertain) in all three classification schemes.

Table 2. Time-trend regressions for job-to-job transition rate and components

Scheme	Constant	Time	Break	Absolute change	Percent change	Percent share of absolute change
Classification scheme 1						
Any switch	0.170***	-0.0024***	0.059***	-0.061***	-44.5***	100.0
Involuntary	0.032***	-0.0004**	0.011***	-0.011**	-42.4*	18.2
Voluntary	0.117***	-0.0007	0.008	-0.017	-15.6	27.5
Uncertain	0.021***	-0.0013**	0.040***	-0.033**	-1139.7	54.2
Classification scheme 2						
Any switch	0.170***	-0.0024***	0.059***	-0.061***	-44.5***	100.0
Involuntary	0.038***	-0.0003	0.021***	-0.009	-26.0	14.2
Voluntary	0.132***	-0.0021***	0.038***	-0.052***	-50.5***	85.8
Classification scheme 3						
Any switch	0.153***	-0.0013*	0.026*	-0.034*	-24.9	100.0
Involuntary	0.033***	-0.0005**	0.013***	-0.013**	-47.6*	37.4
Voluntary	0.120***	-0.0008	0.013	-0.021	-19.4	62.6

Notes: The first three columns show coefficients from regressions of measures of job change on constant, time, and dummy variables for break, which equals 1 for 2003 and later. The dependent variable is equal to 1 if the type of job change occurred and 0 otherwise. The constant and time coefficients are used to predict the level of job change at the beginning and end of the period. The difference between these two points is the absolute change. Percent change is calculated as the absolute change divided by the average of the predicted levels at the beginning and end of the period. Standard errors are calculated taking into account clustering in PSID and year. The totals in the last column may not sum to 100.0 percent because of rounding. PSID sample weights are used, but they have been adjusted so that each year's sum is the same. The number of observations is 133,243.

* Significant at 10 percent.

** Significant at 5 percent.

*** Significant at 1 percent.

Source: Author's calculations using data from the Panel Study of Income Dynamics, 1988–2013.

For the first classification scheme, the coefficients imply a 42.4-percent decline in the rate of involuntary transitions, which is almost as steep as the decline in the overall transitions. In absolute terms, this is a reduction of 1.1 percentage points, from 3.2 percent to 2.1 percent. The time trend for voluntary job changes is not significant, but transitions in the uncertain category decline steeply, with the absolute level falling by 3.3 percentage points.[32] The absolute changes in each of the components can be used to decompose the overall change. Most of the decline (54.2 percent) is accounted for by the uncertain category, followed by 27.5 percent for voluntary transitions and 18.2 percent for involuntary transitions.

In the second classification scheme, which shifts the category that includes seasonal job changes to involuntary and the category that includes unknown reasons to voluntary, the picture looks somewhat different. The time trend for involuntary job changes is no longer significant, while that for voluntary job changes remains significant. The rate of voluntary job changes contracted by 5.2 percentage points, from 13.0 percent to 7.8 percent, or a 50.5-percent decline. Voluntary transitions account for 85.8 percent of the absolute change, while involuntary transitions account for the remaining 14.2 percent.

Under the third classification scheme, where the uncertain category is excluded, the rate of job changes declines more slowly, by 3.4 percentage points (15.2 percent to 11.8 percent), or 24.9 percent. Not surprisingly, the trends in the components look more like they did in the first classification scheme, with statistically significant declines in

involuntary transitions, but no significant declines in voluntary ones. However, because the pool of voluntary transitions is larger, these transitions account for a wide majority (62.6 percent) of the absolute change.

Consistent with previous research, the exercises in this section suggest that employment dynamics, in this case measured by job-to-job transitions, have slowed in recent decades. However, the effort to pinpoint whether this pattern is due to tendencies among voluntary or involuntary transitions was not a complete success, as some of the results are dependent on the classification scheme. All types of transitions seem to be declining, but both the statistical significance of the decline and the share each type of transition accounts for depend on the classification scheme. It is always the case, however, that voluntary transitions account for more of the decline than involuntary ones.

Multivariate analysis of job-to-job transitions

What are the demographic characteristics of those workers most likely to switch jobs, overall? Do these patterns change when one controls for the industrial and occupational composition of the economy? These two questions are asked after restricting attention to voluntary and involuntary job-to-job transitions.

This section has two key purposes. First, to provide background for the analysis of the causes of the decline in job-to-job transition rates that appears in the next section. Second, to add to the body of stylized facts about job-to-job transitions, particularly when a distinction is made between voluntary and involuntary movements. As noted, Monks and Pizer also made such a distinction in their study, but their analysis ended in 1990, did not include women, and only included relatively young men. They chose not to include women in their analysis because of the rapid growth in female labor force attachment that occurred during the 1970s, their period of analysis. Because my analysis begins in 1988, I include women here.

I start the multivariate analysis with a logit, where the dependent variable equals 1 if there was a job-to-job switch[33] between the time of the survey and the beginning of the preceding calendar year and 0 otherwise. I employ a relatively parsimonious specification, avoiding endogeneity issues that would arise if I were to include variables such as job tenure. The first specification only includes controls for gender (1 = woman), race (1 = African American), education group (less than high school, high school graduate, some college, college graduate, and postcollege graduate) and age group (under 25, 25–34, 35–44, 45–54, 55–64, and 65 and over). The first column of table 3 displays the marginal effects of this regression. Perhaps surprisingly, the propensity of women to change jobs does not differ from that of men at conventional levels of significance. While the effect for this coefficient is near the cutoff value for 10-percent significance, the marginal effect is small, implying that the rate for women would be lower by 0.6 percentage point, all else equal. In perhaps the first study of its type using microdata, Francine D. Blau and Lawrence M. Kahn found that women had considerably higher quit rates than men among young adults in the early 1970s.[34] In the years that have gone by since the earlier study, the labor force behavior of women is apt to have moved closer to that of men. In addition, focusing on job-to-job transitions rather than quits restricts the sample to those who are more committed to labor force participation.

Table 3. Logit and multinomial regressions of job-to-job transactions and components, marginal effects relative to nonswitchers

Characteristics	Logit, any switch	Logit, any switch[1]	Multinomial, involuntary	Multinomial, voluntary	Multinomial, uncertain	Multinomial, involuntary[1]	Multinomial, voluntary[1]	Multinomial, uncertain[1]
Classification scheme 1								
Women	-0.006	-0.008**	-0.009***	0.006**	-0.003***	-0.004***	-0.001	-0.003***
African American	-0.003	-0.005	0.006**	-0.013***	0.004**	0.007***	-0.015***	0.003*
Less than high school	0.051***	0.035***	0.011***	0.030***	0.011***	0.008***	0.021***	0.007***
Some college	0.020***	0.028***	0.000	0.017***	0.003**	0.003	0.021***	0.003*
College graduate	0.007	0.031***	-0.010***	0.008	0.011***	-0.004*	0.025***	0.011***
Postcollege graduate	0.007	0.040***	-0.017***	0.014***	0.014***	-0.010***	0.039***	0.012***
Missing education	0.026***	0.025**	-0.001	0.005	0.026***	0.000	0.008	0.017***
25–34 year olds	-0.218***	-0.181***	-0.017***	-0.164***	-0.039***	-0.014***	-0.134***	-0.034***
35–44 year olds	-0.304***	-0.258***	-0.024***	-0.234***	-0.048***	-0.019***	-0.198***	-0.043***
45–54 year olds	-0.346***	-0.302***	-0.030***	-0.267***	-0.050***	-0.026***	-0.232***	-0.046***
55–64 year olds	-0.376***	-0.337***	-0.037***	-0.290***	-0.051***	-0.033***	-0.256***	-0.049***
65 and older	-0.385***	-0.353***	-0.043***	-0.299***	-0.045***	-0.040***	-0.270***	-0.046***
Classification scheme 2								
Women	-0.006	-0.008**	-0.010***	0.004	—	-0.005***	-0.003	—
African American	-0.003	-0.005	0.007**	-0.010**	—	0.009**	-0.013***	—
Less than high school	0.051***	0.035***	0.018***	0.033***	—	0.012***	0.023***	—
Some college	0.020***	0.028***	0.003	0.017***	—	0.006**	0.021***	—
College graduate	0.007	0.031***	-0.003	0.010*	—	0.005	0.027***	—
Postcollege graduate	0.007	0.040***	-0.007***	0.014***	—	0.002	0.039***	—
Missing education	0.026***	0.025**	0.004	0.022***	—	0.003	0.021***	—
25–34 year olds	-0.218***	-0.181***	-0.033***	-0.185***	—	-0.030***	-0.151***	—
35–44 year olds	-0.304***	-0.258***	-0.045***	-0.260***	—	-0.039***	-0.219***	—
45–54 year olds	-0.346***	-0.302***	-0.053***	-0.293***	—	-0.048***	-0.254***	—
55–64 year olds	-0.376***	-0.337***	-0.058***	-0.318***	—	-0.055***	-0.282***	—
65 and older	-0.385***	-0.353***	-0.059***	-0.327***	—	-0.058***	-0.295***	—
Classification scheme 3								
Women	-0.003	-0.006	-0.009***	0.006**	—	-0.005***	-0.002	—
African American	-0.006	-0.007*	0.006**	-0.012***	—	0.008***	-0.015***	—
Less than high school	0.044***	0.031***	0.012***	0.032***	—	0.008***	0.022***	—
Some college	0.018***	0.026***	0.001	0.018***	—	0.003*	0.022***	—
College graduate	0.000	0.025***	-0.010***	0.011*	—	-0.003	0.028***	—
Postcollege graduate	-0.003	0.033***	-0.017***	0.017***	—	-0.009***	0.043***	—
Missing education	0.009	0.013	-0.000	0.010	—	0.001	0.012	—
25–34 year olds	-0.200***	-0.164***	-0.019***	-0.182***	—	-0.016***	-0.149***	—
35–44 year olds	-0.280***	-0.236***	-0.027***	-0.255***	—	-0.021***	-0.215***	—
45–54 year olds	-0.320***	-0.278***	-0.033***	-0.289***	—	-0.029***	-0.250***	—

See footnotes at end of table.

Table 3. Logit and multinomial regressions of job-to-job transactions and components, marginal effects relative to nonswitchers

Characteristics	Logit, any switch	Logit, any switch[(1)]	Multinomial, involuntary	Multinomial, voluntary	Multinomial, uncertain	Multinomial, involuntary[(1)]	Multinomial, voluntary[(1)]	Multinomial, uncertain[(1)]
55–64 year olds	-0.350***	-0.310***	-0.040***	-0.311***	—	-0.036***	-0.275***	—
65 and older	-0.365***	-0.331***	-0.046***	-0.320***	—	-0.043***	-0.289***	—

Notes: Marginal effects are shown from logit regressions for job change where the dependent variable is equal to 1 if there was a job change and 0 otherwise. The multinomial logit for classification scheme 1 has possibilities of voluntary change, involuntary change, "uncertain" change, and no change. The multinomial logit for classification schemes 2 and 3 has possibilities of voluntary change, involuntary change and no change. There are 133,243 observations for classification schemes 1 and 2, and 130,560 for classification 3. PSID sample weights are used, but they have been adjusted so that each year's sum is the same. Standard errors are adjusted to take into account the PSID's complex survey design.

[(1)] With industry and occupation controls included.

* Significant at 10 percent.

** Significant at 5 percent.

*** Significant at 1 percent.

Source: Author's calculations using data from the Panel Study of Income Dynamics, 1988–2013.

Blau and Kahn did not find significant differences by race, neither for men nor for women, in quit rates. In my PSID sample, for African Americans, the marginal effect for job-to-job transitions is about half that for women, but is not statistically significant.

With respect to the marginal effects of education level, those with less than a high school degree have a transition rate that is 5.1 percentage points higher than that of high school graduates (the omitted group). But the likelihood of switching jobs is not ordered by education, as those with some college have transition rate that is 2.0 percentage points higher than that of high school graduates.[35] Transition rates for the other two education groups—college graduates and those who have done some postgraduate work—are not significantly different from that for high school graduates. Monks and Pizer, in their analysis of job transition rates of young white men, estimate that the marginal effects for high school graduates are the lowest of their four education groups, while those for the less than high school group are the highest.[36] In 1999, Annette Bernhardt, Martina Morris, Mark S. Handcock, and Marc A. Scott[37] conducted an analysis using the same underlying datasets as Monks and Pizer but with different sample criteria, years, and specifications. They found that job-separation rates are highest for those without a high school diploma and lowest for those with a college degree or more.[38] However, the likelihood of switching jobs is not ordered by education level in their data, either.

Consistent with past research, such as a study by Robert H. Topel and Michael P. Ward,[39] the present analysis shows that age is a major influence on job mobility in the PSID sample. Those in the youngest age group (16 to 24 years old), which is the omitted group, have the highest likelihood of switching jobs. The probability of job-to-job transitions is ordered by age, but differences by age groups decrease as age increases. The marginal effect of being 25–34 years of age relative to the youngest group is -21.8 percentage points, while that of being 35–44 years old is -30.4 points. Thereafter, the marginal effects by age group decrease only gradually, reaching a minimum of -38.5 points for those 65 years and older.

The industrial and occupational compositions of the economy undoubtedly have effects on job transition rates. For instance, manufacturing tends to have lower turnover than retail trade. Further, occupations differ in terms of the desirability of building long-term employment relationships. Accordingly, it is of interest to see the extent to which the earlier noted demographic patterns are sensitive to the inclusion of indicators that take into account the structure of the economy. Before examining those results, there are a couple of issues worth mentioning. Because the PSID has a relatively small sample in any given year, I aggregate industries and occupations to a high level. In addition, during the study period, the coding of both types of sectors changed in a major way. The PSID made use of 1970 census industry and occupation codes through 2001, and 2000 census codes thereafter; one cannot easily develop a concordance between the two systems.[40] For the multivariate analysis, prior to 2003, I use 9 industries and 7 occupations. From 2003 on, I use 13 industries and 9 occupations.

Column 2 of table 3 shows the results of a logit of job-to-job transitions, which was run with industry and occupation controls. The race variable continues to be insignificant and the age-group pattern remains quite similar to that without industry and occupation controls, but there are some changes with respect to gender and education. The probability of a transition for women is now predicted to be somewhat lower than that for men (a marginal effect of -0.8 percentage point), all else equal. Previously, the difference was statistically insignificant. In addition, transitions by education now show something of a V-shaped pattern. All groups, even those who have graduated college and those who have gone beyond a bachelor's degree, are predicted to have a higher transition rate than that of high school graduates. Thus, on average, the well-educated tend to be in industries and occupations with lower rates of transition, but once this is taken into account, they are more likely to switch jobs than high school graduates.

The next step of the analysis is to assess whether these patterns change when transitions are broken down into their component parts: involuntary, voluntary, and those that cannot be easily classified. To determine this, I run a multinomial logit where the possible outcomes are the three transitions just mentioned and no transition at all. The marginal effects for the three component transitions relative to no transition are shown in the third, fourth, and fifth columns of table 3.

Women are significantly less likely than men to have made an involuntary transition. Part of this difference is attributable to their distribution across industries and occupations, as the marginal effect diminishes from -0.9 percentage point to -0.4 percentage point when sectoral controls are added. African Americans, on the other hand, are somewhat more likely to have made involuntary transitions (0.6 percentage point), and this probability is affected little by industry and occupation controls.

Consistent with a 2015 study by Henry A. Farber,[41] education provides some protection against layoffs. The probability of an involuntary transition decreases as years of schooling rise, although this effect is lessened when controlling for industry and occupation. Further, older workers are less likely to experience involuntary events than younger ones, but the sizes of the effects are much smaller than those noted for all transitions. For example, the marginal effect of being in the 65 or older group relative to the youngest group is -4.0 percentage points for involuntary job changes, after accounting for industry and occupation controls, compared with -35.3 percentage points for all transitions.

For voluntary transitions, the gender and race effects are now reversed from those for involuntary transitions. Women are somewhat more likely (0.6 percentage point) than men to make a transition, while African Americans are 1.3 percentage points less likely, without industry and occupation controls. All other education groups display

greater mobility than high school graduates, although the difference for college graduates is not statistically significant. Marginal effects by age group are large, ranging from -16.4 to -29.9 percentage points, and ordered by age. The picture changes slightly with the addition of industry and occupation controls. Taking the composition of the economy into account, there are no longer significant differences by gender, although differences by race remain. The mobility of college graduates is significantly higher than that of high school graduates, and the large differences by age group remain.

Finally, we turn to the uncertain category, which mainly includes those who left jobs for seasonal reasons and those for whom we have no information as to why the employment relationship ended. With the possible exception of education, the marginal effects of the demographic variables are similar to those found for involuntary transitions. Before industry and occupational controls are included, women are less likely to make this type of transition, while African Americans are more likely. Mobility decreases with age, but by small magnitudes. One difference is found in the education-group results. All other education groups have a significantly higher mobility than high school graduates, but the magnitudes are small. When industry and occupation controls are added, the marginal effects tend to become smaller, but the patterns of significance change little.

Are these findings about demographic differences in transition rates sensitive to the choice of classification scheme? To address this question, I run the same logit and multinomial logit regressions that are shown in panel A of table 3 for classification schemes 2 and 3. For the second classification scheme, there is no difference in what is included in the logit, so the first two columns of table 3, panel A, are the same as those of table 3, panel B. As noted previously, there are differences in how involuntary and voluntary transitions are classified, so the columns pertaining to the multinomial logits are not identical.

For involuntary transitions, there is little difference in the gender and race effects. The age effects are slightly less muted under classification scheme 2, with the difference from top to bottom being close to 6 percentage points, compared with 4 points under classification scheme 1. Further, individuals with a college education or more tend to be substantially less likely to experience an involuntary transition under classification scheme 1 than under scheme 2. In terms of voluntary transitions, the differences between the two schemes are smaller, although classification scheme 2 tends to have a wider range of age effects.

Moving to the third classification scheme, the logit is now different from that summarized in panels A and B because of the change in sample. The demographic patterns of the logit are, however, quite similar, though the range for age effects is somewhat wider. The patterns of the involuntary transitions also closely resemble those found in classification scheme 1. This similarity is, perhaps, not surprising because classification schemes 1 and 3 classify the same reasons as involuntary, although scheme 1 also retains "uncertain" as a choice. Similarly, for voluntary transitions, the results of classification schemes 1 and 3 are quite similar.

Accounting for trends in job-to-job transition rates

Earlier, I documented the downward trends in job-to-job transition rates, attributing them to trends in their voluntary and involuntary components. In this section, after just having examined the relationship between the transition rates, on the one hand, and demographic factors and the structure of the economy, on the other, I now take a different tack. Here, I calculate how much of the trend in job-transition rates can be accounted for by changes over

time in the right-hand-side variables. I examine the effect of shifts in the demographic composition, the effects of changes in industrial and occupational composition, and the combined effects of both.

From 1988 to 2013, the workforce became older, more educated, more female, and less White. In my sample, the share of workers age 45 years and over rose from 30.0 percent in 1988 to 49.9 percent in 2013. During the same period, the share of workers with at least some college education grew from 47.4 percent to 66.1 percent. Changes in gender and race were less pronounced, with the shares of females and African Americans edging up by 1.3 percentage points.

Did these demographic shifts, especially those of age and education, lead to notable changes in the job-to-job transition rates? To examine this issue, I ran the same time-trend regressions as those summarized in table 2, but with demographic controls. As shown in table 4, the demographic controls account for nearly three-fifths of the decline in job-to-job transition rates. With these covariates added, the rate is predicted to decline by a still significant (at the 10-percent level) 2.5 percentage points, versus 6.1 points without the controls. When the sets of controls are entered individually, it is apparent that the aging of the workforce, combined with the large age effects, accounts for almost all of the demographic impact. In other studies, age shifts have accounted for a smaller though still important share of the decline in employment dynamics.[42] The rising education level of the workforce only accounts for 6 percent of the reduction in job-to-job transitions in the PSID. This is the case because differences in overall tendencies to switch jobs by education group are small, particularly when compared with the differences by age group. The smaller shifts in gender and race have very little impact.

Table 4. Accounting for changes in job-to-job transition rates under classification scheme 1

Covariates	Absolute change	Percent share of absolute change
No additional controls	-0.061***	0.0
All demographic controls	-0.025*	59.4
Women	-0.061***	-0.1
African American	-0.061***	0.0
Education	-0.058***	6.0
Age	-0.026**	56.8
Industry and occupation controls	-0.061***	0.7
Industry	-0.063***	-3.6
Occupation	-0.049***	19.6
All controls	-0.034**	45.0

Notes: Each line is from derived from a separate regression, where the dependent variable is whether or not an individual switched jobs, and the independent variables are constant, time, and a dummy variable for break. The constant and time coefficients are used to predict the level of job change at the beginning and end of the period. The difference between the value of the two endpoints is the absolute change. Percent change is calculated as the absolute change divided by the average of the predicted levels at the beginning and the end of the period. PSID sample weights are used, but they have been adjusted so that they each year's sum is the same. Standard errors are calculated, taking into account clustering in PSID and year. There are 133,243 observations.

* Significant at 10 percent.

** Significant at 5 percent.

*** Significant at 1 percent.

Source: Author's calculations using data from the Panel Study of Income Dynamics, 1988–2013.

Has the economy shifted to industries and occupations in which job changes, either voluntary or involuntary, are less frequent? Taking both dimensions together, the answer is no. This finding is consistent with that of the 1998 Monks and Pizer study, which found that industry and occupation combined contributed little to an increase in job turnover among the young men that they studied in the 1970s and 1980s.[43] It is, nonetheless, interesting to examine the two dimensions separately. Changes in industry composition have a negligible impact on the job-to-job transition rate, but changes in occupational composition can account for nearly one-fifth of the fall in this rate.

Putting all the pieces together—demographic and sectoral—the available controls account for 45 percent of the decline in the job-to-job transition rate. Why does combining industry and occupation controls with the demographic variables lead to reduced explanatory power relative to the demographic controls alone? A key reason seems to be the impact of the inclusion of the structural controls on the education coefficients. *Without* industry and occupation in the logit, as shown in the first column of table 3, both college graduates and postcollege graduates, which is where the weight of the sample is shifting, have coefficients of nearly zero. *With* the structural controls, individuals in those two education categories are more likely to shift jobs than high school graduates (the omitted group). Thus, when industry and occupation dummy variables are included, the shifts in education decrease job-to-job transitions.

Conclusion

Using the PSID, this analysis of job-to-job transition rates from 1988 to 2013 has advanced the study of recent employment dynamics in the United States. Just as with previous studies, there is evidence that workers have become less mobile. The PSID has an advantage over other data sources because job-to-job transitions can be labeled as voluntary or involuntary. In terms of which shifts are most responsible for the decline in mobility, the results are mixed because they change by classification scheme. Both voluntary and involuntary transitions appear to be in decline regardless of classification scheme, but the decline is not always statistically significant. However, the results consistently show that voluntary transitions account for more of the decline than involuntary ones.

Accounting exercises that attribute changes in job-to-job transition rates to demographic shifts are less ambiguous. The aging of the workforce, by itself, is estimated to be responsible for roughly 57 percent of the decline in job-to-job transition rates. Despite the explanatory power of this demographic shift, more research is needed on job-to-job transitions, and labor market dynamics more generally, in order to better understand what other factors are influencing the observed patterns.

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NOTES

1 Employment dynamics refers to the rate at which workers and jobs move across employers.

2 Prominent examples of research in this area include Raven Molloy, Christopher L. Smith, Riccardo Trezzi, and Abigail Wozniak, “Understanding declining fluidity in the U.S. labor market,” *Brookings Papers on Economic Activity*, Spring 2016, pp. 183–237, https://www.brookings.edu/bpea-articles/understanding-declining-fluidity-in-the-u-s-labor-market/; and Steven J. Davis and John Haltiwanger,

"Labor market fluidity and economic performance," Working Paper 20479 (National Bureau of Economic Research, September 2014), https://www.nber.org/papers/w20479.

3 See Henry R. Hyatt and James R. Spletzer, "The recent decline in employment dynamics," *IZA Journal of Labor Economics*, vol. 2, no. 5, September 2013, https://izajole.springeropen.com/articles/10.1186/2193-8997-2-5.

4 Job reallocation rates represent the sum of job creation (the sum of jobs created at expanding or new employers) and job destruction (the sum of jobs destroyed at contracting or exiting employers) rates. Worker reallocation rates represent the sum of hires and separations. Worker reallocation must be at least as high as job reallocation, as its excess over that level represents churn. See Simon Burgess, Julia Lane, and David Stevens, "Job flows, worker flows, and churning," *Journal of Labor Economics*, vol. 18, no. 3, July 2000, pp. 473–502, https://www.journals.uchicago.edu/doi/10.1086/209967?mobileUi=0&; and Edward P. Lazear and James R. Spletzer, "Hiring, churn and the business cycle," Working Paper 17910 (National Bureau of Economic Research, March 2012), https://www.nber.org/papers/w17910.

5 These authors measure hires, separations, job creation, job destruction, and job-to-job flows. The datasets are derived from the following sources: the Longitudinal Employer-Household Dynamics (LEHD), the Business Employment Dynamics (BED), the Job Openings and Labor Turnover Survey (JOLTS), and the Current Population Survey (CPS).

6 These include Bruce Fallick and Charles A. Fleischman, "Employer-to-employer flows in the U.S. labor market: the complete picture of gross worker flows," Finance and Economics Discussion Series 2004–34 (Board of Governors of the Federal Reserve System, 2004), https://ideas.repec.org/p/fip/fedgfe/2004-34.html; Steven J. Davis, R. Jason Faberman, and J. Haltiwanger, "The flow approach to labor markets: new data sources and micro-macro links," *Journal of Economic Perspectives*, vol. 20, no. 3, 2006, pp. 3–26; Steven J. Davis, "The decline of job loss and why it matters," *American Economic Review*, vol. 98, no. 2, 2008, pp. 263–67; R. Jason Faberman, "Job flows, jobless recoveries, and the great moderation," Working Paper 08–11 (Federal Reserve Bank of Philadelphia, 2008), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1144865; Steven J. Davis, R. Jason Faberman, John Haltiwanger, Ron Jarmin, and Javier Miranda, "Business volatility, job destruction, and unemployment," *American Economic Journal: Macroeconomics*, vol. 2, no. 2, 2010, pp. 259–87; Shigeru Fujita, "Declining labor turnover and turbulence," Working Paper 11–44 (Federal Reserve Bank of Philadelphia, September 2012), https://www.philadelphiafed.org/-/media/research-and-data/publications/working-papers/2011/wp11-44R.pdf; Steven J Davis, R. Jason Faberman, and John Haltiwanger, "Labor market flows in the cross section and over time," *Journal of Monetary Economics*, vol. 59, no. 1, 2012, pp. 1–18; Lazear and Spletzer, "Hiring, churn and the business cycle"; Isabel Cairó and Tomaz Cajner, "Human capital and unemployment dynamics: why more educated workers enjoy greater employment stability," *The Economic Journal*, vol. 128, no. 609, March 2018, pp. 652–82, https://onlinelibrary.wiley.com/doi/abs/10.1111/ecoj.12441; Isabel Cairó, "The slowdown in business employment dynamics: the role of changing skill demands" (Universitat Pompeu Fabra, 2013), https://www.sole-jole.org/14345.pdf; and Henry Hyatt, "The decline in job-to-job flows," *IZA World of Labor*, no. 175, August 2015, https://wol.iza.org/articles/decline-in-job-to-job-flows/long.

7 See Molloy et al., "Understanding declining fluidity."

8 See Hyatt and Spletzer, "The recent decline in employment dynamics."

9 Robert H. Topel and Michael P. Ward, "Job mobility and the careers of young men," *Quarterly Journal of Economics*, vol. 107, no. 2, May 1992, pp. 439–479, https://academic.oup.com/qje/article-abstract/107/2/439/1838303?redirectedFrom=fulltext.

10 Luis Armona, Samuel Kapon, Laura Pilossoph, Ayşegül Şahin, and Giorgio Topa, "Searching for higher wages," *Liberty Street Economics* (Federal Reserve Bank of New York, September 2015), http://libertystreeteconomics.newyorkfed.org/2015/09/searching-for-higher-wages.html.

11 Davis and Haltiwanger, "Labor market fluidity."

12 Molloy et al., "Understanding declining fluidity."

13 Raven Molloy, Christopher L. Smith, and Abigail Wozniak, "Declining migration within the U.S.: the role of the labor market," Working Paper 20065 (National Bureau of Economic Research, April 2014). See also Raven Molloy, Christopher L. Smith and Abigail Wozniak, "Job changing and the decline in long-distance migration in the United States," *Demography*, vol. 54, no. 2,

2017, pp. 631–653, https://ideas.repec.org/a/spr/demogr/v54y2017i2d10.1007_s13524-017-0551-9.html. (The authors argue that a decline in job changing has caused a reduction in interstate migration.)

14 See Jordi Gali and Thijs van Rens, "The vanishing procyclicality of labor productivity" (IZA Institute for the Study of Labor, January 2014), https://www.researchgate.net/publication/46442569_The_Vanishing_Procyclicality_of_Labor_Productivity.

15 See Hyatt and Spletzer, "The recent decline in employment dynamics"; and Molloy et al., "Understanding declining fluidity."

16 See Davis and Haltiwanger, "Labor market fluidity."

17 See Molloy et al., "Understanding declining fluidity"; and Molloy et al., "Job changing and the decline." (The authors cast doubt on occupational licensing as an explanation, although they acknowledge weaknesses in their data.)

18 See Cairó, "The slowdown in business employment dynamics."

19 See C. Jeffrey Waddoups, "Did employers in the United States back away from skills training during the early 2000s?" *ILR Review*, vol. 69, no. 2, March 2016, pp. 405–434, https://journals.sagepub.com/doi/abs/10.1177/0019793915619904.

20 The Panel Study of Income Dynamics public-use dataset is produced and distributed by the Survey Research Center, Institute for Social Research at the University of Michigan. While the PSID has not been used in the recent employment dynamics literature, it was extensively employed in earlier, related articles seeking to document patterns in job stability. See, for example, David A. Jaeger and Ann Huff Stevens, "Is job stability in the United States falling? Reconciling trends in the Current Population Survey and the Panel Study of Income Dynamics," *Journal of Labor Economics*, vol. 17, no. 4, 1999, pp. S1–S28.

21 Job-to-job transitions can also be calculated using the Current Population Survey. See, for example, Jay Stewart, "Using March CPS data to analyze labor market transitions," *Journal of Economic and Social Measurement*, vol. 32, no. 2, January 2007, pp. 177–97, https://www.researchgate.net/publication/279605490_Using_March_CPS_data_to_analyze_labor_market_transitions; and Molloy et al., "Understanding declining fluidity." The Census Bureau's Longitudinal Employer Household Dynamics files can also be used to calculate job-to-job transitions. See Henry Hyatt, Erika McEntarfer, Kevin McKinney, Stephen Tibbets, and Douglas Walton, "Job-to-job (J2J) flows: new labor market statistics from linked employer-employee data," JSM Proceedings 2014, Business and Economics Statistics Section, pp. 231–45, http://henryrhyatt.com/wp-content/uploads/2015/09/jsm_j2j.pdf.

22 See Bruce Fallick, John Haltiwanger, and Erika McEntarfer, "Job-to-job flows and the consequences of job separations," Finance and Economics Discussion Series, 2012–73 (Board of Governors of the Federal Reserve System, 2012), https://www.federalreserve.gov/pubs/feds/2012/201273/201273pap.pdf (discussing related issues and references). See Henry A. Farber, "Job loss in the Great Recession and its aftermath: U.S. evidence from the Displaced Workers Survey," *IZA Institute of Labor Economics*, Discussion Paper 9069, May 2015, https://www.iza.org/publications/dp/9069/job-loss-in-the-great-recession-and-its-aftermath-us-evidence-from-the-displaced-workers-survey (recent analysis of the decline in earnings among those who lose jobs through displacement).

23 See Johanne Boisjoly, Greg J. Duncan, and Timothy Smeeding, "The shifting incidence of involuntary job losses from 1968 to 1992," *Industrial Relations*, vol. 37, no. 2, April 1998, pp. 207–31, ftp://monitoringthefuture.org/pub/src/psid/other/Job_loss.pdf. (The authors had access to the verbatim answers of the respondents. They considered all answers that fell in the first category and all "laid off" answers as involuntary transitions. They considered being fired as an ambiguous status. Of those in the third category—laid off or fired—those fired constituted 15.7 percent of the cases. Because I do not have access to the verbatim responses, I put those fired and those laid off in the same category. These authors do not include those affected by strike or lockout. That response is given quite rarely, accounting for only 0.02 percent of the reasons provided for leaving a job during the period of my study.)

24 Support for the difficulty of classifying job changes attributable to seasonal work can be found in data from Bureau of Labor Statistics statistical programs. In the Displaced Worker Supplement of the Current Population Survey (https://www.bls.gov/cps/lfcharacteristics.htm#displaced), those who lost or left a job because seasonal work was completed are not considered displaced, while in the now discontinued Mass Layoffs Statistics program, "seasonal" is given as a reason for layoffs (https://www.bls.gov/mls/).

25 James Monks and Steven D. Pizer, "Trends in voluntary and involuntary job turnover," *Industrial Relations*, vol. 37, no. 4, October 1998, pp. 440–59, https://onlinelibrary.wiley.com/doi/pdf/10.1111/0019-8676.00098.

26 The other reasons for leaving a job include health; disability; didn't like the work, hours, working conditions or location; dissatisfied with wages; interpersonal relations; found better job; family or personal reasons; entered military service; became self-employed; no chance for advancement; and others.

27 There are relatively few unanswered "reasons for leaving a job" questions in the PSID, accounting for only about 3 percent in all survey years except 2003 and 2005. In 2003 and 2005, a processing error caused the reason question to be left out of the survey for some of the respondents, and the proportion of missing responses is about 22 percent.

28 See Hyatt and Spletzer, "The recent decline in employment dynamics"; and Molloy et al., "Understanding declining fluidity."

29 Hyatt and Spletzer, "The recent decline in employment dynamics."

30 While this exercise could have been done with annual data and yielded the same results, I chose to use microdata. In a later analysis, I will add individual variables. I also interacted break with time to see if there was a different trend following the break, but the coefficient on this variable was highly insignificant.

31 In Molloy et al., "Understanding declining fluidity," the authors use the Current Population Survey, a different methodology for measuring transitions and a different smoothing technique than I use, to estimate that the rate of job-to-job transitions fell from 15.4 percent in 1975 to 11.9 percent in 2014, a decline of 25.6 percent.

32 The predicted end-of-period value is outside of the possible range, because it is negative.

33 This dependent variable is identical under classification schemes 1 and 2, but is somewhat different under scheme 3. Under scheme 3, transitions are removed from the sample when the reason for leaving a job either falls in the seasonal category or cannot be ascertained.

34 Francine D. Blau and Lawrence M. Kahn, "Race and Sex differences in quits by young workers," *Industrial and Labor Relations Review*, vol. 34, no. 4, July 1981, pp. 563–577, https://www.jstor.org/stable/2522478?seq=1#metadata_info_tab_contents.

35 Cairó and Cajner, "Human capital and unemployment dynamics." (The authors argue that lower unemployment rates among more educated workers are almost exclusively a function of slower job loss among these workers, rather than of a greater likelihood of finding a job once unemployed. They attribute these job-separation patterns and generally greater employment stability to higher levels of specific human capital among the more educated.)

36 Monks and Pizer, "Trends in voluntary and involuntary job turnover."

37 Annette Bernhardt, Martina Morris, Mark S. Handcock, and Marc A. Scott, "Trends in job instability and wages for young adult men," *Journal of Labor Economics*, vol. 17, no. 4, October 1999, pp. S65–S90, https://www.jstor.org/stable/10.1086/209943?seq=1#metadata_info_tab_contents.

38 Ibid.

39 Topel and Ward, "Job mobility."

40 See Peter B. Meyer and Anastasiya M. Osborne, "Proposed category system for 1960–2000 census occupations," Working Paper 383 (U.S. Bureau of Labor Statistics, 2005), https://www.bls.gov/osmr/research-papers/2005/pdf/ec050090.pdf. (The authors attempt to reconcile the two systems on the occupation side.)

41 Farber, "Job loss in the Great Recession."

42 See Hyatt and Spletzer, "The recent decline in employment dynamics"; and Molloy et al., "Understanding declining fluidity."

43 Monks and Pizer, "Trends in voluntary and involuntary job turnover."

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