



Interstate Migration and Employer-to-Employer Transitions in the United States: New Evidence From Administrative Records Data

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Abstract

Declines in migration across labor markets have prompted concerns that the U.S. economy is becoming less dynamic. In this study, we examine the relationship between residential migration and employer-to-employer transitions in the United States, using both survey and administrative records data. We first note strong disagreement between the Current Population Survey (CPS) and other migration statistics on the timing and severity of any decline in U.S. interstate migration. Despite these divergent patterns for overall residential migration, we find consistent evidence of a substantial decline in economic migration between 2000 and 2010. We find that composition and the returns to migration have limited ability to explain recent changes in interstate migration.

Keywords Migration · Labor reallocation · Job-to-job flows · Employment · Matched employee-employee data

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Introduction

The U.S. labor market is frequently lauded for its dynamism, with high rates of job creation, job destruction, and worker turnover. Yet, many indicators of labor market fluidity have declined in recent decades. For example, downturns in residential migration—together with lower rates of hiring, separations, and employer-to-employer transitions—have raised concerns that labor markets are becoming more rigid (Davis and Haltiwanger 2014; Hyatt and Spletzer 2013; Molloy et al. 2017), prompting concern among policy-makers (Executive Office of the President 2015; Yellen 2014). Increased labor market rigidity would have significant consequences for the U.S. economy: labor and capital flows are the primary means by which the economy adjusts to negative shocks and returns to full employment. Labor flows are also a principal means by which employment is reallocated from less to more productive firms and sectors of the economy.¹ If labor market fluidity has declined, the United States is likely to experience more prolonged recessions and slower productivity growth.

In this study, we use survey and administrative data to study the relationship between declining migration and job change in the United States since 2000. We first consider the sharp decline in the migration rate captured by the Current Population Survey (CPS), which has received considerable attention in the economics literature (see, e.g., De Loecker and Eeckhout 2017; Kaplan and Schulhofer-Wohl 2017; Karahan and Rhee 2017; Molloy et al. 2011, 2016, 2017). We note differences between residential migration rates using the CPS and other data sources, and we explore possible explanations using a unique data set of CPS responses matched with administrative records on migration. We find more agreement among data sources on changes in economic migration in recent decades, only a fraction of which can be explained by changing worker and firm composition. We also explore the earnings gains of migrants and find that changes in these returns to migration also have limited explanatory power.

The United States has long been considered to be a highly mobile society. However, migration within the United States as measured by the CPS has been declining for decades, reaching historic lows in the wake of the Great Recession (Molloy et al. 2017). Regional patterns have also changed in recent decades, with less out-migration from northern and coastal cities and less in-migration into western and Sunbelt states (Frey 2009). Changing family, cultural, and technological factors may have contributed to a decline, including the rise of dual-earner couples, declines in the divorce rate, and increases in telecommuting (Cooke 2011, 2013). Our focus here is on the contribution of macroeconomic factors—particularly declining rates of job change—on migration rates.

As we begin our empirical investigation, we must first contend with the fact that the migration rate in the CPS has diverged markedly from that of other data sources in recent years.² We use a unique data set that links CPS respondents to longitudinal administrative records from the Internal Revenue Service (IRS) on their place of residence to assess the extent to which the discrepancy in migration rates from the

¹ Blanchard and Katz (1992) argued that regional labor markets adjust to negative labor market shocks primarily through migration flows. Dahl (2002) and Wozniak (2010) showed that tight labor markets generally attract more migrants. Haltiwanger et al. (2017) showed that employer-to-employer moves account for a disproportionate share of the differential growth of high productivity firms.

² Such differences in the trend in interstate migration persist even after we apply the standard corrections proposed by Kaplan and Schulhofer-Wohl (2012).

CPS and administrative records data can be explained by composition, measurement error, or other survey effects. We find that an increasing discrepancy between CPS responses and respondent administrative records drives the divergence between the IRS and CPS migration series. These findings suggest that researchers should exercise caution when relying on the CPS to study migration trends.

When we turn our focus to economic migration, we find more similar levels and trends in the CPS and administrative records data. In both data sets, the rate of cross-state economic migration declines in the first decade of the twenty-first century. Between 2000 and 2010, the economic migration rate fell from 0.9 % to 0.5 % in the CPS, whereas it fell from 0.8 % to 0.5 % in the administrative records data. We show that cross-state moves motivated by new employment opportunities account for well under one-half of overall residential migration: specifically, one-fourth of all cross-state moves in the administrative records data and one-third of such moves in the CPS data. Meanwhile, only approximately one-tenth of all employer-to-employer transitions have a coincident residential move across states. These results highlight that interstate migration and employer-to-employer transitions are substantially different concepts. They also show that researchers should exercise caution when explaining changes in overall migration using arguments specific to economic migration.

Having documented a sizable decline in economic migration between 2000 and 2010 in both survey and administrative records data, we turn to the question of why. We first perform a shift-share analysis to identify the extent to which the decline in migration is driven by changes in the composition of workers and firms over this decade. The aging of the workforce explains approximately one-tenth of the decline, and the fall in the employment rate may explain somewhat more. No other demographic or economic characteristics have much explanatory power. Overall, our shift-share analysis suggests the decline in economic migration is not driven by changes in firm or worker composition. These results are consistent with the findings of earlier studies, which found that declines in migration and labor market churn are only partly explained by changes in worker and firm composition (Hyatt and Spletzer 2013; Molloy et al. 2016).

We next examine trends in earnings changes for interstate migrants to explore other potential explanations for changes in economic migration since 2000. One natural explanation for declining economic migration would be a decline in the returns to migration.³ On the other hand, if increased divergence in housing costs deters migration across markets, we might expect earnings gains for migrants to trend upward as the pool of migrants becomes more selective toward those with greater earnings gains from migrating.⁴ Our evidence favors neither lower returns to migration nor higher costs of migrating. We find substantial cyclicalities but no clear trend in earnings gains for migrants in our data. Consistent with the findings of Hyatt and McEntarfer (2012),

³ Kaplan and Schulhofer-Wohl (2017) argued that interstate migration has declined because of a decline in the geographic specificity of the returns to working in particular occupations. Lacking administrative records data on occupation, we cannot make more progress in evaluating that mechanism here. Molloy et al. (2017), using survey data, found some evidence that the net benefit to changing employers has fallen in recent years.

⁴ Rising house prices may have deterred migration following the Great Recession through housing lock when the housing bubble burst. However, empirical studies have generally found that the effect of negative equity on migration during the Great Recession was quite small (e.g., Nenov 2015; Schulhofer-Wohl 2012; Valletta 2013). Other researchers have argued that high housing costs in cities may have deterred potential migrants from other parts of the country (Hsieh and Moretti 2015).

the returns to job change more generally are cyclical but also do not exhibit an obvious trend decline. From these patterns, we infer that the fall in economic migration in the late 2000s is likely related to cyclical changes in labor market churn and not a systematic decline in either returns to job change or the cost of migration.

Data

We use a number of survey and administrative records data sources in our analysis. Whenever practical, we restrict our sample to the civilian population aged 16–64, excluding those in the armed forces and individuals living in group quarters. Given that some of our key data are available only from 2000 forward, much of our analysis will focus on these more recent years, but we discuss pre-2000 trends as data permit.

Current Population Survey (CPS)

The March CPS Annual Social and Economic Supplement (ASEC) provides several decades of detailed labor force and income data for a representative sample of the U.S. population.⁵ It asks respondents where they lived one year ago, along with their reason for migrating. These features make the ASEC an attractive data source for studying labor dynamics and migration flows.

The CPS is also widely used to measure rates of job change. Employer-to-employer transitions can be measured in the CPS in both the ASEC and the monthly CPS. Starting in 1976, the CPS ASEC began asking a retrospective question on the number of jobs a respondent held in the last year. If the respondent reported working for more than one employer in the last year, this suggests that the worker transitioned from employer to employer. Several researchers have analyzed the time trend of this proxy (Farber 1999; Hyatt 2015; Molloy et al. 2016; Stewart 2007). In addition to this proxy measure, the employer-to-employer transition rate can be measured directly from the monthly CPS data, following Fallick and Fleischman (2004).⁶

In some of our analysis, we also use CPS ASEC microdata linked with address data sourced largely from administrative records (federal tax returns). We use these linked microdata to examine growing discrepancies between CPS and IRS migration rates. We describe the administrative records data in detail later in this section.

Internal Revenue Service (IRS) Migration Data

The IRS Statistics of Income migration data also provide several decades of data. IRS migration rates are calculated from year-to-year changes in residence location based on individual tax returns. A key advantage of IRS migration data is that they are drawn from the population of tax filers rather than a sample of households, thus allowing for

⁵ We use CPS ASEC data downloaded from the University of Minnesota's Integrated Public Use (IPUMS) Microdata Series (Ruggles et al. 2010). As Kaplan and Schulhofer-Wohl (2012) recommended, we exclude imputed migration responses, which change discontinuously in the early 2000s because of changes in procedures for handling nonresponse, and individuals with migration responses assigned (allocated) from the householder (i.e., primary respondent) if the householder's response is imputed.

⁶ We download the CPS monthly data from NBER (http://www.nber.org/data/cps_basic.html).

more granular study of migration flows than survey data. However, using IRS migration statistics exclusively to study migration trends has drawbacks. The frame of the IRS data is tax filers, not households, and the data are not nationally representative: for example, nonfilers tend to be younger, have lower incomes, and may have higher migration rates. Recent improvements in the migration statistics starting in 2011 include detailed demographic breakouts and better capturing of late filers but result in a break in the time series after that year (Internal Revenue Service 2012).

American Community Survey (ACS)

The ACS is a large, nationally representative, cross-sectional survey of the United States, available from 2001 forward.⁷ To identify migrants, the ACS asks a retrospective question similar to the one asked in the CPS ASEC. Notable differences exist between the two surveys, however. Sample sizes in the ACS are larger than in the CPS, although they are obviously smaller than the counts that underlie the IRS tabulations. Also, the ACS may pursue nonrespondents more intensively than the CPS, which might lead to higher migration rates in the ACS (Koerber 2007). An important difference between the ACS and CPS for our purpose is that the ACS neither asks migrants their reason for moving nor collects information on employer-to-employer transitions, so we are unable to measure the rate of economic migration using the ACS.

The ACS has a somewhat different residency concept from the CPS. The CPS respondents are individuals at their usual residence, whereas the ACS normally includes those who are at sampled housing units for at least two months and have no other usual residence (at the time of the survey, or those who plan to remain for at least two months; see U.S. Census Bureau 2014). In the ACS, housing units—apart from group quarters, where no one meets that requirement—are considered vacant. The CPS, by contrast, includes individuals in a sampled housing unit as long as they do not have a usual residence elsewhere. As a result, the ACS may not capture a part of the population that moves more frequently (although we later show that the ACS migration estimates are consistently higher than the CPS). The IRS migration series also has no minimum residency requirement, but as discussed earlier, it lacks migrants who do not file taxes.

Another distinction between these surveys is that the ACS surveys respondents throughout the year, whereas the CPS ASEC is administered in March. This difference may cause divergence between the CPS and ACS if there is a large degree of recall bias and seasonality in migration. The timing of the IRS is also broadly consistent with that of the CPS ASEC: given the income tax filing deadline of April 15, migration rates roughly compare addresses in consecutive Aprils. Because the IRS migration series

⁷ We download ACS data for 2001 onward from the IPUMS (<https://usa.ipums.org/usa/>) (Ruggles et al. 2010). Kaplan and Schulhofer-Wohl (2017) excluded pre-2005 ACS data from their study because of concerns about changes in survey methodology that occurred between 2001 and 2005, the year in which it reached its final size as a 1-in-60 sample of the U.S. population. However, we include estimates for pre-2005 years here because changes in the ACS sample size should affect only the precision of estimates. We also find that the pre-2005 ACS estimates are highly correlated with other published migration statistics. We also use data for the year 2000 from the Census 2000 Supplemental Survey, the precursor to the ACS, which serves as our initial year of ACS migration data. We calculate an ACS migration rate for 2000 using data from PUMS (<http://www2.census.gov/programs-surveys/acs/data/pums/2000/>).

uses administrative records rather than survey responses, recall bias is not an issue in the IRS itself, but recall bias in the survey data may cause differences.

The ACS and CPS both have an additional relationship to the IRS migration statistics. Like most household surveys conducted by the U.S. Census Bureau, survey responses are assigned weights based on both sampling probabilities (particular states, neighborhoods, or populations are included in the survey with different frequencies) and population estimates (Lent et al. 1994; U.S. Census Bureau 2010). The population estimates provide annual total counts by age, gender, race, and ethnicity. These estimates use the counts from the most recent decennial census, adjusted for births, deaths, and migration. Net migration in an area is sourced from several administrative records sources, including migration implied by linked IRS tax returns (U.S. Census Bureau 2017). For example, if migration in a particular U.S. state as captured by administrative records sources exceeds the change in its number of housing units over the course of a year, this might lead to an increase in the weights applied to that area. The weights for the population estimates are differentially applied only by location, age, gender, race, and ethnicity, and do not consider migration responses. We therefore expect the impact of this weighting on measured migration rates to be small.

Longitudinal Employer-Household Dynamics (LEHD)

We make extensive use of the linked employer-employee microdata maintained by the LEHD program at the U.S. Census Bureau (Abowd et al. 2009). The LEHD data contain longitudinal information on residential location and employment, created by linking multiple administrative records data sources with census and survey microdata. The core LEHD data consist of quarterly jobs data (i.e., particular employer-employee combinations) collected from state unemployment insurance programs. These job records are linked to census survey and administrative records data for characteristics of the workers (including place of residence) and employers. LEHD data cover approximately 95 % of private sector employment as well as state and local government. Self-employment earnings, the armed services, and civilian federal employment are outside the LEHD frame. The availability of LEHD job-level data varies by state, so we restrict our analysis to the set of states with jobs data beginning in 1999.⁸

Information on individual residence in LEHD data comes from the Composite Person Record (CPR). The CPR is constructed from multiple administrative sources, but for most individuals, residence information is sourced from federal tax returns (Leggieri et al. 2002). Thus, our residence microdata are very similar to the microdata used to produce IRS migration statistics. If the residential address in the CPR changes, we assume that the migration occurred between April of that year and the previous year. Our measure of migration has similar strengths and drawbacks to the IRS migration

⁸ The 34 states used in our analysis are California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Maryland, Minnesota, Missouri, Montana, Nevada, New Jersey, New Mexico, North Carolina, North Dakota, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, West Virginia, and Wisconsin. These states accounted for approximately 74 % of the U.S. population in 2010.

statistics (e.g., near universal coverage of tax filers, or timing issues when individuals file taxes early or late).⁹

A main objective of this study is to evaluate the role of declining job mobility in explaining the decline in migration. To identify employer-to-employer transitions in the LEHD data, we link the main jobs in each quarter of a worker's employment history. When a worker separates from a job and begins work at a new job either in the same quarter or the next, we classify this as an employer-to-employer move.¹⁰ We define a particular migration in the LEHD data as "economic" if an employer-to-employer transition occurs at the same time as a residence change and both the new employer and the new residence are in a different state.¹¹ This approach has a few limitations. First, an unemployed worker who moves to a better labor market to search for work will not necessarily be classified as making an economic move if the unemployment spell is sufficiently long. Second, we will classify some moves as being economic that may be principally driven by other factors, such as when someone takes a new job to be closer to family. Finally, we will miss some economic migrations if either the new or old job is not covered by state unemployment insurance, including federal workers and the self-employed.

Interstate Migration in the United States, 1981–2014

We begin by comparing residential migration rates in the CPS, ACS, IRS, and LEHD data from the early 1980s to 2014, as shown in Fig. 1. We focus on interstate migration throughout, which has received considerable attention in the economics literature.¹² The CPS and IRS migration data have the longest time series, and both show a decline from approximately 3.1 % in 1986 to 2000 at 2.4 % in the CPS and 2.6 % in the IRS series. Starting in 2000, however, trends in the CPS and IRS migration statistics diverge substantially. Interstate migration in the CPS falls sharply to 1.4 % by 2010. The IRS migration rate in recent decades is more procyclical, rising to 2.7 % in 2006 before falling to 2.2 % by 2010. Migration in the ACS closely mirrors the levels and trends in the IRS data. As expected given the similar data source, the rate calculated from the

⁹ Production of the CPR was discontinued after 2010 and was replaced with a new file, the Residence Candidacy File (RCF). Migration rates increase sharply when the RCF replaces the CPR. The IRS introduced multiple methodological improvements that cause migration rates to increase discontinuously by a similar amount in 2011. Because of this issue, we focus on the 2000–2010 period for much of our analysis.

¹⁰ LEHD employer-to-employer transitions in this study are calculated using the same methodology as Hyatt and McEntarfer (2012) and Haltiwanger et al. (2018), which is similar to the methodology used to calculate the Census Bureau's Job-to-Job Flows statistics (Hyatt et al. 2014) but identifies main jobs among all jobs held during the quarter, rather than the subset of jobs that span at least two consecutive quarters. Rates of job change in the public use Job-to-Job Flows data are lower but show similar cyclical patterns.

¹¹ Specifically, we classify a move as economic if (1) the worker changes employers between the second quarter of the previous year and the first quarter of the current year, and the new employer is located in a different state; and (2) the worker changes state of residence in the administrative records data in that year.

¹² Figures A1 and A2 in the online appendix reveal that metropolitan statistical area (MSA) and county-level migration rates, respectively, show similar trends for each of these four series. Naturally, MSA and county-level migration rates have higher levels than interstate migration. Note that the CPS continues to show more of a decline in recent decades than the other series using these alternative migration definitions. In Figure A3 in the online appendix we show that limiting the CPS to a subset of states, as we do for the LEHD data, affects the level but not the trend of the interstate migration rate.

LEHD closely mirrors the IRS migration rate.¹³ Economists have proposed that the sharp decline in the CPS interstate migration rate is evidence that U.S. labor markets are becoming more rigid. However, Fig. 1 shows that a precipitous and sustained post-2000 decline is a feature unique to the CPS migration series.

We use a unique data source of CPS responses linked with LEHD administrative records on place of residence to explore this divergence further. These linked data allow us to explore several plausible reasons that migration might be falling more steeply in the CPS, including more respondents who do not report changes in residence (i.e., respondent error), more migrants who not respond to the survey (i.e., nonresponse error), and more migrants filing taxes (i.e., changes in the frame of tax filers). The CPS respondent records matched to LEHD records allow us to compare self-reported migration with what administrative records indicate about the location of respondents' residence in the survey year relative to the prior year. Given that the CPS is administered in March and asks about the previous year and that the administrative records compare an address held around April 15 to an address held around the same time in the previous year, these data sources should usually agree at the individual level. However, because not all CPS respondents are expected to have filed taxes in two consecutive years, the matched CPS-LEHD data provide evidence on whether survey error or changes in the frame of tax filers are driving a wedge between the two series.

Figure 2 compares interstate migration rates for CPS respondents as measured by survey response or by administrative records data for the years 2002–2009, for which the divergence between the CPS and the other data sources is most pronounced. Figure 2 shows that the widening gap between self-reported migration and the administrative records data is apparent even within the linked subset, with self-reported migration rates falling 0.6 percentage points. The figure also shows that the migration rate calculated from the administrative records is relatively constant, falling by 0.1 percentage points overall and by 0.3 percentage points in the linked data. This evidence rules out changes in the frame of tax filers as well as unit nonresponse bias in the CPS as primary causes of the divergence of the CPS migration rate from administrative records tabulations.

In Fig. 3, we examine this discrepancy further, creating three separate migration rates. The first rate is calculated for CPS respondents who report an interstate migration to the CPS but have no corresponding change in state of residence in the administrative records data (dashed line); the second is for respondents who change state of residence in the administrative records data but do not report a cross-state move to the CPS (solid line); and the third is for respondents who are migrants in both data sources (dotted line). Less than one-third of CPS migration responses are not present in the administrative records data, whereas almost one-half of migrations present in the administrative records data are not reported by CPS respondents.¹⁴ This evidence helps explain why

¹³ Table A1 in the online appendix shows the correlations between the series displayed in Fig. 1. Despite the divergent trends, the intertemporal correlation between the CPS and the other series are still quite high (between 0.66 and 0.85).

¹⁴ We explore the extent to which timing issues affect the mismatch in Table A2 (online appendix). Timing issues (especially late filers) account for almost one-half of CPS migrations that do not appear in the administrative records data that year. We also investigate whether one-time changes in the administrative records data—which may be due to nonsurvey error—explain many of the cases in which the migration appears only in the administrative records data in Table A3 (online appendix); these account for only 15 % of mismatches.

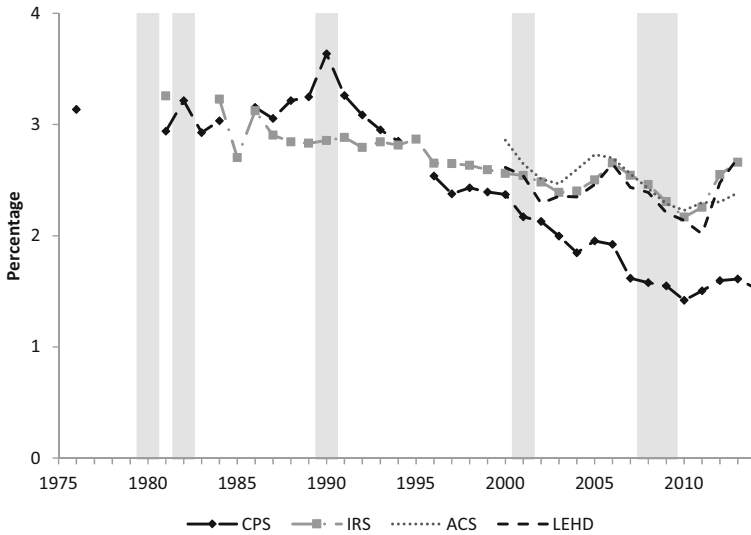


Fig. 1 Interstate residential migration rates. Shaded areas denote recessions as determined by the National Bureau of Economic Research. Authors’ tabulations using the Current Population Survey (CPS), American Community Survey (ACS), and Longitudinal Employer-Household Dynamics (LEHD) microdata, as well as published tabulations of Internal Revenue Service (IRS) data. CPS, ACS, and LEHD migration rates are calculated for the population aged 16–64

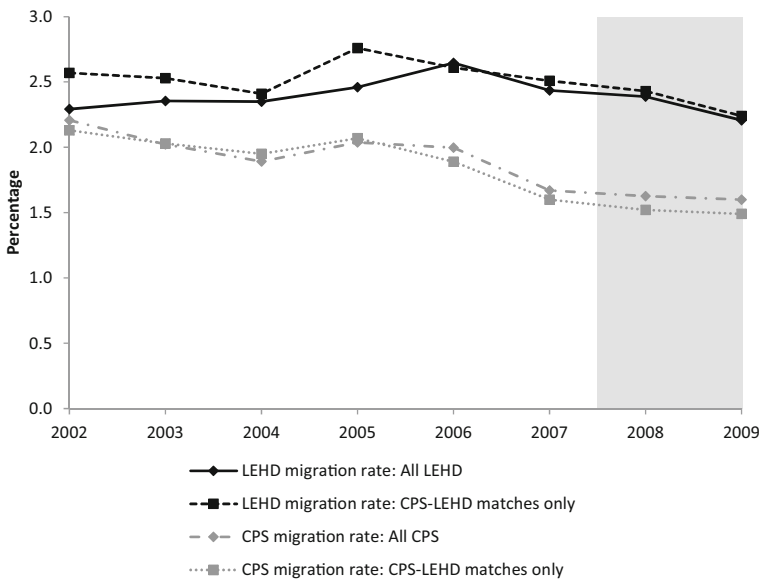


Fig. 2 CPS and LEHD migration rates versus matched CPS-LEHD subset. The “CPS-LEHD matches” are CPS ASEC respondents for a given year who match to LEHD and have residential information for that year, the three previous years (i.e., the year pair for which states of residence are compared to determine migration, plus the two previous years), and the two subsequent years. All series are calculated for the population aged 16–64 in the reference year

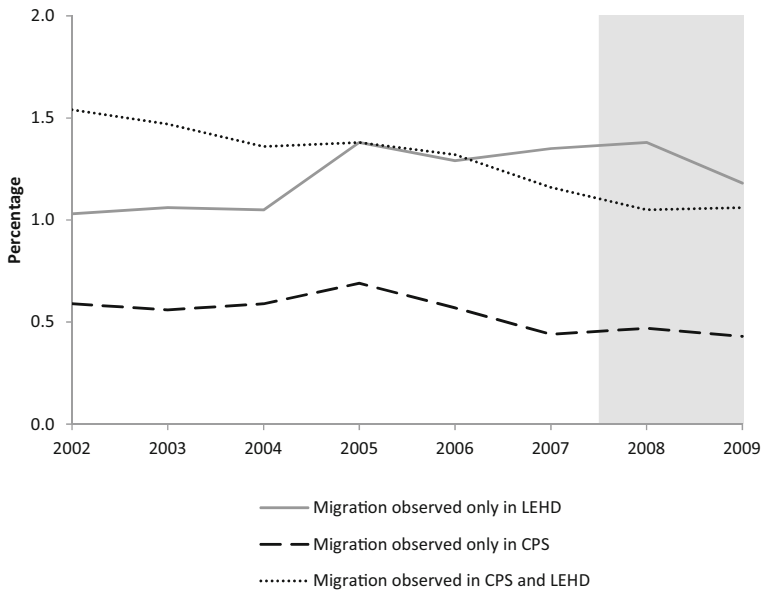


Fig. 3 Matched CPS-LEHD migration rates. CPS ASEC respondents for a given year aged 16–64 who match to LEHD and have residential information for that year, the three previous years (i.e., the year pair for which states of residence are compared to determine migration, plus the two previous years), and the two subsequent years

the CPS interstate migration rate disagrees with the rate derived from administrative records sources: the share of respondents who report migrating in the CPS but do not migrate in the administrative records has fallen over time, whereas the share of migration that appears in the administrative records but not in the CPS has increased, especially around 2005. This growing share drives the divergence between the two series.

Job Change and Economic Migration

Job Change in Recent Decades

Before looking at economic migration specifically, we first compare trends in overall job mobility in the CPS and LEHD data. Figure 4 shows quarterly employer-to-employer flow rates calculated from the monthly CPS LEHD data, and an annual rate calculated from the CPS ASEC, defined as the fraction of those employed who worked for multiple employers in the last year. Despite the divergence in residential migration rates in these two data sources, here all three measures are procyclical and track each other very closely between 2000 and 2010. Differences widen after 2010, with the LEHD data showing more of a recovery than the CPS. The LEHD employer-to-employer transition rate reached a high of 7.5 % in 2000, declined to 5.8 % in 2003, recovered to 6.6 % by 2005, reached a low of 4.4 % during the 2007–2009 recession, and rebounded to 5.8 %

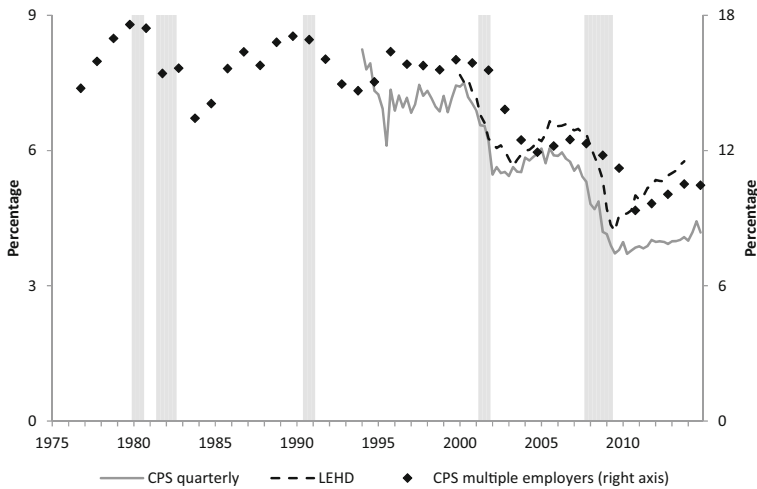


Fig. 4 Employer-to-employer transition rates. Shaded areas denote recessions as determined by the National Bureau of Economic Research. Quarterly data are seasonally adjusted. CPS monthly data are converted to quarterly via addition following Hyatt and Spletzer (2013). The second and third quarters of 1995 are missing one month each because of changes made between June and August in the CPS monthly files. The CPS multiple employers series is constructed from the CPS ASEC and coded to the first quarter, and measures the rate of respondents reporting two or more employers in the last year

by the end of 2013. The ASEC annual job transition rate is also cyclical but shows no evidence that job transition rates were on a trend decline during the 1980s and 1990s.¹⁵ Likewise, it is difficult to argue that declining migration rates in the CPS and IRS during the 1980s and 1990s can be associated with an obvious corresponding fall in job mobility.¹⁶ As Molloy et al. (2016, 2017) emphasized, the more dramatic declines in these employment reallocation rates after 2000 resemble the coincident decline in the CPS interstate migration rate.

Economic Migration

We begin our analysis by assessing the extent to which residential migrations are motivated by job opportunities. Recall that we define an economic migration in the CPS as one where the primary reason for moving was a new job or job transfer. In the LEHD data, we classify an interstate migration as economic if there is a concurrent interstate employer-to-employer transition. These economic migration rates are shown in Fig. 5. Economic migration accounts for approximately one-third of total residential migration in the CPS and one-fourth in the LEHD. Given the stronger decline in

¹⁵ Data sources on labor market fluidity do not show a consistent trend over this period. Depending on the series, employment reallocation rates may have increased, stayed roughly constant, or declined. Decker et al. (2014) and Molloy et al. (2016) suggested that labor reallocation may have declined from the 1970s to the 1990s. Moscarini and Thomsson (2007) and Kambourov and Manovskii (2008) provided evidence that mobility across industries and occupations increased over the span of those decades, whereas Hyatt (2015) and Hyatt and Spletzer (2016) provided evidence that labor reallocation had little trend over this same period.

¹⁶ Despite diverging trends, data sources on migration and job change are all procyclical and therefore are highly correlated. Correlations between different employer-to-employer transition rates and migration rates are shown in the online appendix, Table A1.

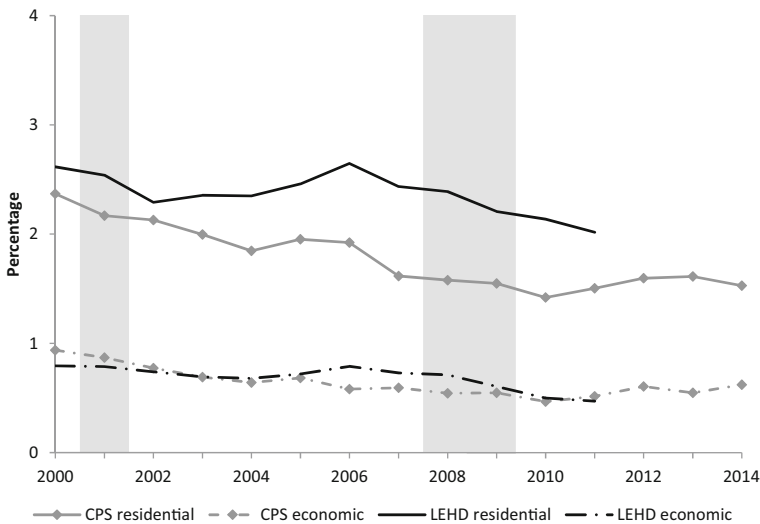


Fig. 5 Interstate migration, residential and economic. Shaded areas denote recessions as determined by the National Bureau of Economic Research

interstate migration in the CPS, we are surprised to find that levels and trends for interstate economic migrations are much more similar in the CPS and LEHD data.¹⁷

Table 1 compares residential migration, economic migration, and rates of job change in the CPS and LEHD data for 2000 and 2010. Overall interstate migration rates fell by one-half between these years in the CPS compared with a much smaller decline (one-fifth) in the LEHD data. However, both series show similar declines in migrations for new job opportunities. Economic migration fell from 0.9 % in the CPS and 0.8 % in the LEHD data for 2000 to 0.5 % in each for 2010. The fall in economic migration explains three-fifths of the relatively small decline in overall migration in the LEHD data. Fewer moves to new job opportunities explain a smaller fraction (almost one-half) of the larger decline in residential migration in the CPS.

Also shown in Table 1 are detailed breakouts of migration rates by reason for migration in the CPS. Migrations for family, housing, and other reasons account for more than one-half of migrations in the CPS in 2000. “New job/job transfer” is the most frequent single reason for moving. Other economic motives for migrating (“other job-related” and “lost job/job search”) make up a very small share of migrations. The decline in migration for non-economic reasons is nearly as large that of economic migration in the CPS. This contrasts with the LEHD data, in which the decline in non-economic migration is much smaller than that of economic migration.

¹⁷ For CPS data with the same state-based sample selection criteria, see Fig. A4 in the online appendix, which looks virtually the same as Fig. 5, with the CPS migration rates being only slightly lower. Figures A5 and A6 (online appendix) provide analogs of these interstate and economic migration rates at the MSA and county levels, respectively, and are very similar to Fig. 5 apart from expected level differences. Note that the LEHD economic migration rate series for substate geography relies on imputation for employers with multiple establishments in a single state (see Abowd et al. 2009), so we expect our so-constructed MSA- and county-level economic migration rates to be biased upward by a small amount.

Table 1 Employment migration and employer-to-employer transitions: Percentages

	2000	2010	Percentage Point Change	Proportionate Change
LEHD				
Employer-to-employer transition rate (quarterly)	7.3	5.0	-2.3	-37.3
Interstate migration rate	2.6	2.1	-0.5	-20.1
Economic migration rate	0.8	0.5	-0.3	-45.5
CPS				
Multiple employers rate (annual)	15.4	10.8	-4.7	-35.2
Employer-to-employer transition rate (quarterly)	6.9	3.8	-3.2	-59.2
Interstate migration rate	2.5	1.5	-1.0	-50.2
CPS migration reason				
New job/job transfer	0.9	0.5	-0.5	-67.0
Lost job/job search	0.1	0.1	0.0	2.5
Other job-related	0.2	0.1	-0.1	-67.2
Family	0.6	0.4	-0.2	-40.0
Housing	0.3	0.1	-0.1	-53.2
Other	0.4	0.3	-0.1	-37.3

Notes: All series are annual except for employer-to-employer transition rates, which are quarterly. Rates are calculated for individuals aged 16–64, excluding those in the armed forces and residing in group quarters, and any observations in the CPS with allocated or imputed migration values. Within the CPS, gross residential rates are weighted with the supplement weight. We calculate annual job change rates in the CPS ASEC using the method outlined in Farber (1999). The LEHD employer-to-employer transition rate includes both within-quarter and adjacent-quarter transition of a worker’s dominant job (i.e., the job associated with the highest earnings); see Hyatt and McEntarfer (2012). The denominator is the total number of dominant jobs. We report the employer-to-employer transition rate from the first quarter of 2000 and the first quarter of 2010 after seasonal adjustment. Interstate migration is calculated from the LEHD data. The Proportionate Change column reports the difference between the rate in 2010 and in 2000, divided by the average of the rate in 2000 and in 2010. Some percentage points do not equal the difference in columns because of rounding (differences and proportionate change are exact at two decimal points). CPS migration reason categories follow Kaplan and Schulhofer-Wohl (2017).

Why Did Migration Rates Decline Between 2000 and 2010?

The Role of Composition Changes

In this section, we explore mechanisms that may have affected interstate migration overall and economic migration specifically. We begin with a shift-share analysis following Hyatt and Spletzer (2013) and Decker et al. (2014). Formally, this decomposition can be expressed as follows:

$$\Delta Y_t = \sum_i \Delta S_{it} \bar{Y}_i + \sum_i \Delta Y_{it} \bar{S}_i$$

where ΔY_t is the change in the migration rate from 2000 to 2010, i represents each group within a demographic category (e.g. age), \bar{Y}_i is the average transition rate for each i , \bar{S}_i is the average share of each i , ΔY_{it} is the change in the transition rate for each

i , and ΔS_{it} is the change in the share of individuals within each i . The first component of the right side of the equation captures the fraction of the change attributable to compositional changes, or explained variation, and the second component captures the fraction attributable to within-group changes, or unexplained variation.

Using both the CPS and LEHD data, we decompose residential and economic migration by age, gender, race and ethnicity, education, and employment characteristics; these results are shown in Table 2. Compositional shifts in age contribute the most among demographic characteristics to the change in residential migration in both data sources: 7.1 % in the CPS and 15.5 % in the LEHD. This finding is consistent with the aging of the U.S. population and older people being less likely to move. A similar effect attributable to the aging of the workforce explains changes in the economic migration rate: 9.1 % in the CPS and 12.0 % in the LEHD. Other demographic characteristics have little explanatory power. This is consistent with the findings of Hyatt and Spletzer

Table 2 Decomposition of residential and economic migration rates: Percentages

	Residential Migration		Economic Migration	
	CPS	LEHD	CPS	LEHD
2000	2.4	2.6	0.9	0.8
2010	1.5	2.1	0.5	0.5
Change	-0.9	-0.5	-0.5	-0.3
% of Change Explained by Worker Characteristics				
Gender	0.0	0.4	0.0	0.2
Age	7.1	15.5	9.1	12.0
Race and ethnicity	1.3	0.8	1.1	1.2
Education	-4.7	-0.1	-7.8	0.4
Employment, previous year	—	-1.9	—	11.4
Employment, subsequent year	-4.2	-1.2	1.8	24.6
% of Change Explained by Firm Characteristics				
Industry, previous year	—	-2.3	—	-1.1
Industry, subsequent year	-1.1	-1.4	0.1	-0.3
Firm size, previous year	—	-0.5	—	-1.2
Firm size, subsequent year	—	-0.4	—	-1.0
Firm age, previous year	—	3.7	—	0.8
Firm age, subsequent year	—	4.7	—	2.1

Notes: We group age as follows: 16–18, 19–21, 22–24, 25–34, 35–44, 45–54, and 55–64. We categorize race and ethnicity as Hispanic of any race, white and not Hispanic, black and not Hispanic, Asian and not Hispanic, and not Hispanic and any other race or more than one race. We group education into less than high school, high school, some college, and college and beyond. Industries are grouped into NAICS supersectors. Industry in the administrative records data refers to the industry associated with the workers dominant job. Similarly, we use the firm size and age of the dominant job prior to migration for the Firm Size and Firm Age categories, respectively. We group firm age into the following groups of years: <1, 2–3, 4–5, 6–10, and >10. We group firm size into the following numbers of employees: <20, 20–49, 50–249, 250–499, and >499. We classify an interstate residential migration as workers in the LEHD who resided within a different state the subsequent year. The CPS ASEC is used for the CPS migration rates. Both shares and rates are weighted with the CPS supplement weight.

(2013) and Molloy et al. (2016) that the aging U.S. population helps explain declines in employment reallocation and population migration rates.

The CPS and the LEHD differ in the explanatory power of employment characteristics. Table 2 shows that although most of the considered economic categories explain little of the change in residential migration, employment characteristics naturally explain more of the change in the economic migration rate. Change in the employment rate explains 1.8 % of this decline in the CPS, contrasted with 11.4 % to 24.6 % in the LEHD. This large difference likely arises from the way we define an economic migration in the LEHD: we use employment change during a residential move to define economic migration, which is more likely to include someone who was previously employed. Firm characteristics have only a small ability to explain migration changes in both the CPS and LEHD, and they are calculated only for the subset of workers with positive earnings.¹⁸ This suggests less of a role for declining entrepreneurship (i.e., changes in the firm age distribution) in changing migration than Hyatt and Spletzer (2013) and Decker et al. (2014) documented for job and worker reallocation rates. Overall, these decompositions provide further evidence that most of the change in interstate migration rates should be attributed to changes in migration behavior within demographic and employment groups rather than to changes in composition.

Returns to Migration

We now address whether the changes in economic migration might be associated with differential returns to migration. The LEHD has a record of each worker's longitudinal earnings history, which allows us to measure earnings changes associated with economic migrations. We calculate the log earnings changes associated with an interstate job move and compare them with earnings changes associated with all other job changes. For the subset of workers who have state-to-state, employer-to-employer transitions for a pair of years that indicate residential migration, we take the quarter of job change as the time the migration occurred.

Figure 6 shows annual log earnings changes from 2000 to 2010 associated with two types of labor market earnings transitions: (1) interstate employer-to-employer transitions that involve a change in state of residence, and (2) employer-to-employer transitions that do not involve a change in the worker's state of residence. As a baseline, those who are continuously employed for two years but do not change employers—"job stayers"—are also shown. The difference in log earnings is a measure of the percentage change in earnings and thus is straightforward to interpret. Job stayers have far lower earnings increases, which dip below zero during the height of the Great Recession. Consistent with the evidence Hyatt and McEntarfer (2012) presented, workers who undergo employer-to-employer transitions see substantial increases in earnings, and these

¹⁸ It is possible to code the nonemployed, who, by definition, do not have a firm size, age, or industry. When we did so (not reported), we found effects similar in magnitude to that of employment. These changes were driven by changes in the non-employed category rather than changes in the firm size, firm age, or industry groups; hence, we report decomposition results only for workers with positive earnings for categories that report the results of a firm characteristic. All other decompositions are done on the full population aged 16–64.

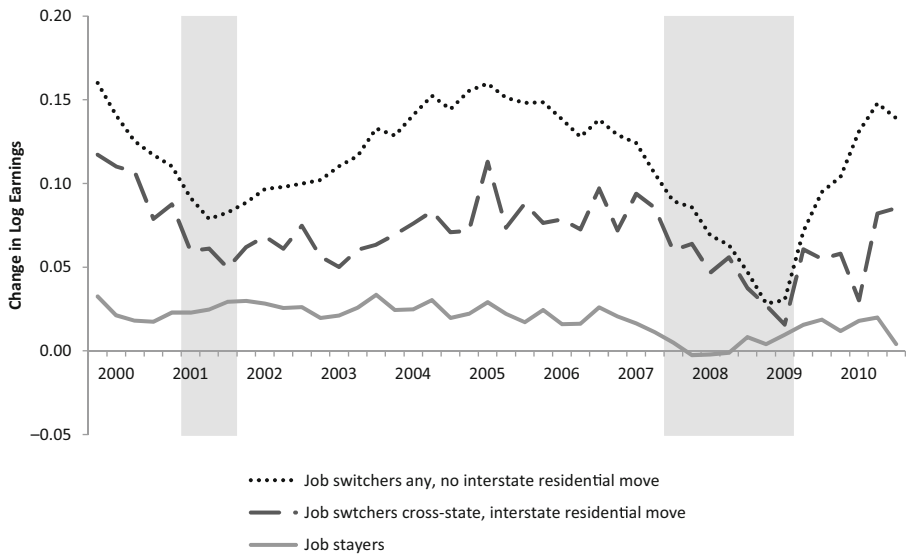


Fig. 6 Change in log earnings. For each category, a point represents the median difference of log earnings for one year after the quarter minus log earnings one year prior to the quarter. The sample is initially restricted to workers who have earnings every quarter for four quarters prior to a quarter of interest and four quarters after. The “Job Stayers” sample are workers who stayed at the same job during these two years around the quarter. “Job Switchers Any, No Interstate Residential Move” are workers who had any dominant employer-to-employer transition during that quarter and who did not have an interstate residential move. “Job Switchers Cross-State, Interstate Residential Move” are workers who had a dominant employer-to-employer transition across two states during that quarter and had an interstate residential move. Shaded areas denote recessions as determined by the National Bureau of Economic Research

earnings increases are highly procyclical. In 2000, 2005, and 2010, earnings increased by approximately 15 % for workers who changed jobs but did not change their state of residence. This change fell to 9 % during the 2001 recession and to 4 % during the 2007–2009 recession.

Individuals who changed both states of work and residence also had procyclical earnings changes, which were smaller, in the range of 3 % to 14 %. It initially seems counterintuitive that interstate migrants have lower earnings increases than nonmigrants given the positive cost to moving. However, migrants have substantially higher earnings (by 30 % to 40 %) than nonmigrants but experience approximately the same earnings change in absolute terms as nonmigrants. Ultimately, Fig. 6 does not provide strong evidence of a trend decline in the returns to economic migration.¹⁹

¹⁹ These changes in earnings may be driven by selection. If the earnings changes associated with migrating are higher for those whose observable characteristics indicate that they are more likely to migrate, then the predicted returns to migration may be constant. Therefore, we conducted two propensity score matching analyses that hold constant the estimated probability of migrating. In the online appendix, section B, we demonstrate that the main features of Fig. 6 are robust to this selection correction technique.

Conclusion

Summary

Recent studies have suggested a connection between falling migration rates and other evidence that U.S. labor markets are becoming less dynamic (e.g., Davis and Haltiwanger 2014; Hyatt and Spletzer 2013; Molloy et al. 2017). Yet, caution is warranted in drawing connections between declining labor market fluidity and migration. Most migrations are not driven by new job opportunities. Migration rates declined from the 1980s to the 1990s, but many measures of labor market fluidity show evidence of a decline only in more recent decades. The decline in interstate migration has been rather modest since 2000 in most migration statistics. In contrast, post-2000 trends in employment reallocation show fairly sharp declines, especially during and after the 2007–2009 recession.

Falling interstate migration rates in the CPS have been found in many recent economic studies, yet the precipitous post-2000 decline in these rates also reflects a sharp divergence from other available migration statistics. We use CPS responses matched with administrative records data to explore the reasons that migration falls much more severely in the CPS since 2000. We find that a substantial fraction of CPS respondents who are cross-state migrants in the administrative records data do not report a cross-state move in the CPS and that this disagreement has grown over time. One conclusion that we draw from this analysis is that researchers should use caution when using the CPS for studying how migration has changed in recent decades. Recent improvements to the IRS migration statistics make these data highly attractive for studying migration flows, and we hope that future research will give these data additional attention.

Despite disagreement in recent changes to overall residential migration, economic migration rates and trends are remarkably similar in both the CPS and administrative records data. In fact, both data sources suggest sharp declines in economic migration in the first decade of the twenty-first century, consistent with declining rates of job change found in previous research. Changes in the rate of economic migration in the United States explain approximately one-half of the decline in residential migration in the CPS and three-fifths of the decline in administrative records data. When we investigate whether changes in rates of economic migration are associated with declining returns to migration, we find that the return to migration is procyclical but shows no evidence of a declining trend.

We find that changes in worker demographics and firm characteristics explain only a fraction of the decline in migration across U.S. states, similar to other studies in the literature. If observable characteristics of firms and workers are not driving declining rates of job change and migration, then there are two main alternative explanations. One explanation is that these changes are cyclical, and thus labor market fluidity can be expected to increase as the economy expands. On the other hand, if there is a long-run decline, perhaps changing U.S. labor market institutions increasingly impedes labor market mobility. The latter explanation has motivated reviews of occupational licensing and noncompete contracts, which may impede labor market fluidity (Davis and Haltiwanger 2014; Executive Office of the President 2015). Our empirical analysis suggests that recent measured declines in labor market fluidity are more cyclical than a

cursory review of the evidence might suggest. If changes in labor market fluidity are mostly cyclical, such policies aimed at directly increasing labor market fluidity may have limited impact.

Directions for Further Research

The willingness of workers to migrate for new job opportunities appears to have changed substantially in recent years, but causes for the change remain largely unexplained. We provide evidence here that even the substantial decline in residential migration from 2000 to 2010 was not driven by declines in earnings gains from migration or declines in labor market dynamics generally. We also confirm previous findings that changing demographics—in particular, the aging of the U.S. population—explain only a fraction of migration declines. More research on this question is clearly needed.

To the best of our knowledge, our study is the first to use LEHD microdata to study economic migration. We have shown its power to address divergent trends in interstate migration between the CPS and administrative records data as well as for the study of the returns to economic migration. We believe that these data are an underutilized resource for demographers and economists interested in regional labor market dynamics, and we encourage other researchers to work with this data. There are two main venues to access LEHD data. One is to apply for access to LEHD microdata through the Federal Research Data Center network.²⁰ The universe-level microdata allow researchers to study migration over longer time intervals and for people who move multiple times. They also provide the opportunity to link to other data sets that include information on business productivity and revenue as well as other household surveys, such as the Survey of Income and Program Participation, which contains rich demographic information, including marriage and divorce. New public-use statistics present another opportunity. The new Job-to-Job Flow statistics, published by the U.S. Census Bureau, provide quarterly flows of workers across labor markets (states and metropolitan statistical areas) tabulated from LEHD microdata at a detailed level of firm and worker characteristics.²¹ These newly available public-use tabulations also provide information on the earnings changes associated with employer-to-employer transitions across particular cities and states and thus provide a rich data source for measuring the returns to migration.²²

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²⁰ To apply to use these data, please visit https://www.census.gov/about/adm/fsrdc/about/available_data.html. See McKinney and Vilhuber (2014) for a detailed description of the LEHD microdata available for use in approved projects by external researchers.

²¹ Hyatt et al. (2014) provided an overview of the Job-to-Job Flows tabulations, which are available for download (https://lehd.ces.census.gov/data/j2j_beta.html).

²² Hahn et al. (2017) described these newly released earnings data.

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