The Recent Decline in Worker Mobility*

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June 21, 2014

PRELIMINARY AND INCOMPLETE
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Abstract

The objective of this paper is to understand the link between two labor market phenomena: job polarization and decline in worker mobility. There are two main contributions of this paper. First, using a matched employer-employee dataset, I analyze the dynamics of worker mobility by focusing on the accession and separation rate by occupation. I find evidence in line with the literature that, since the mid-1990s, the United States labor market has seen a secular decline in worker mobility that accelerates during downturns. Decomposing accessions/separations by the past/future employment state of the individual, I find that while the movement of workers to and from unemployment has not changed drastically over the last two decades, this is not the case for the movement of workers between employers. While the dynamics of the accession rate seems to be quite consistent across occupation, this is not the case for the separation rate. Workers in middle-skill occupations accounted for the vast majority of the increase in the separation rate to nonemployment during the Great Recession.

*This research uses data from the Census Bureau's Longitudinal Employer Household Dynamics Program, which was partially supported by the following National Science Foundation Grants SES-9978093, SES-0339191 and ITR-0427889; National Institute on Aging Grant AG018854; and grants from the Alfred P. Sloan Foundation. Any opinions and conclusions expressed herein are those of the author and do not necessarily represent the views of the U.S. Census Bureau. All results have been reviewed to ensure that no confidential information is disclosed.

†I am indebted to John M. Abowd, Karel Mertens, and Victoria Prowse for all of their advice and support. I would also like to thank Kevin McKinney, Lars Vilhuber, and Lingwen Zheng for their helpful comments. All mistakes herein are my own.

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1 Introduction

The United States labor market exhibits high rates of job and worker flows that attest to its fluidity.[1] This churn has long been thought to play a central role in labor market efficiency, as workers search and move towards more productive uses.[2] While there are several ways to measure and analyze this movement, they all highlight the importance of mobility in understanding the aggregate condition of the labor market.[3] As workers gradually transition towards jobs of better overall and match-specific quality this can result in real benefits, even in the presence of search frictions. However, a worker's ability to find these higher quality matches may be curtailed for a variety of reasons, both cyclical and structural. In recent years, researchers have noticed a drastic decline in these employment dynamics. Davis, Faberman and Haltiwanger (2006) notice a long downward slide in job creation rates even before the onset of the 2001 recession that continued for seven quarters after the recession's end. This general decline in labor market dynamics has persisted since then, as summarized by Hyatt and Spletzer (2013). These authors analyze a wide variety of flow measures from several leading datasets and find that gross job flows, gross worker flows, and job-to-job flows have all decreased drastically over the last decade, particularly during the recession years. While understanding the cyclicality of labor market dynamics is important in and of itself (Barlevy, 2001, 2002; Kahn and McEntarfer, 2013), these downturns also appear to be accelerating an underlying trend that is ultimately driving this decline in worker mobility. Therefore, it is also important to analyze how changes in employment dynamics fits in with other labor market trends and how they interact with aggregate economic conditions.

Over this same period, there is a growing literature that documents the changing job composition in the United States.[4] The expanding job opportunities in both high-skill, high-wage occupations and low-skill, low-wage occupations has been coupled with the contracting opportunities in middle-wage, middle-skill white-collar and blue-collar jobs.[5] Specifically, as noted by Autor (2010), employment and earnings are rising in both high-education professional, technical, and managerial occupations and, since the late 1980s, in low-education food service, personal care, and protective service occupations. Conversely, job opportunities are declining in both middle-skill, white-collar clerical, adminitrative, and sales occupations and in middle-skill, blue-collar production, craft, and operative occupations. The literature has identified the following culprits responsible for this

[1] Davis, Faberman and Haltiwanger (2006, 2012) provide a summary of both the empirical findings and the related literature on gross worker and job flows.

[2] See the seminal work of Jovanovic (1979) for a theoretical model that embodies this idea. And Farber (1999) provides a survey of the empirical work on job mobility.

[3] Abowd and Vilhuber (2011) provides a more recent summary of worker, job, and excess reallocation rates using the Quarterly Workforce Indicators (QWI), data released by the United States Census Bureau that is compiled from underlying micro-level data collected through the Longitudinal Employer-Household Dynamics (LEHD) Program. They further compare these measurements to other data sources. See Burgess, Lane and Stevens (2000) and Lazear and Spletzer (2012) for details on the dynamics of churn. Finally, see Fallick and Fleischman (2004), Bjelland et al. (2011), and Hyatt and McEntarfer (2012a,b) for summaries on job-to-job flows in the United States.

[4] See Acemoglu and Autor (2011) for a summary of this literature.

[5] For related literature on job polarization, see Autor et al. (2006, 2008); Autor (2010); Acemoglu and Autor (2011); Goos and Manning (2007); and Goos, Manning and Salomons (2009).

hollowing out of the middle: changes in technology, international trade, and the international offshoring of jobs.[6] All of these factors affect the availability of employment opportunities and the demand for skill.

This paper will focus on job polarization and analyze its relationship to the observed decline in employment dynamics. The main contributions are two-fold. First, using a matched employer-employee dataset, I compute the accession and separation rate and focus on how it varies across occupation to analyze how the disappearance of middle-skill jobs impacts worker mobility.[7] To better understand the causal link between these two phenomena, I then develop an equilibrium search and matching model that incorporates the task content of jobs to better quantify the mobility effects of job polarization and how this has impacted the most recent recovery. The remainder of the paper is organized as follows. Section 2 presents the motivation for anlyazing the link between job polarization and the decline in employment dynamics. Section 3 describes the data used and the empirical findings. Finally, section 4 concludes.

2 Related Literature

2.1 Job Polarization

The disappearance of jobs traditionally held by middle-skilled workers has become quite striking. During the 1980s, employment growth by occupation is approximately monotone in skill level with occupations below the median skill level declining as a share of employment and those above the median rising as a share of employment. However, in the subsequent decade, this monotone relationship gave way to a distinct pattern of polarization: relative employment growth was most rapid for high-skill occupations, modestly positive for low-skill occupations, and modestly negative for middle-skill occupations. But, in the most recent decade, employment growth was heavily concentrated among the low-skill occupations, while it was negative for the middle-skill occupations. Thus, the disproportionate growth of low education, low-wage occupations became evident in the 1990s and accelerated thereafter.

Using data from the Current Population Survey (CPS) March Supplement from 1989-2012, I classify employment into 10 major occupational groups encompassing all U.S. non-agricultural employment as in Acemoglu and Autor (2011). Figure 1 plots the percentage point changes in employment levels for various time intervals. The ten occupations divide neatly into three groups, with task complexity generally increasing as one moves right along the horizontal axis. The first three columns depict employment trends in service occupations: protective services, food preparation and cleaning services, and personal care. The majority of workers in service occupations have

[6] See Autor et al. (2006, 2008); Krugman (2008); Autor (2010); Acemoglu and Autor (2011)

[7] See Hyatt and Spletzer (2013) for a summary of the general decline in employment dynamics using a wide array of measures and references to related literature.

no post-secondary education. Further, the average hourly wages in service occupations are in most cases below the other seven occupations categories. The next four columns display employment growth in "middle-skill occupations:" sales; office and administrative support; production, craft, and repair; and operator, fabricator, and laborer. The first two are middle-skilled, white-collar occupations that are disproportionately held by women with a high school degree or some college. The latter two categories are a mixture of middle- and low-skilled blue-collar occupations that are disproportionately held by males with a high school degree or lower education. The last three columns are highly educated and highly paid occupations: managers, professionals, and technicians.

Cumulatively, the rapid employment growth in both low and high education jobs have substantially reduced the share of employment accounted for by middle-skill workers. In other words, while the number of people employed in these middle-skill occupations rose in each period between 1989-2007, their growth rate lagged the economy-wide average and generally slowed across decades. These occupations were hit particularly hard during the 2007-2009 recession, with absolute declines in employment ranging from 7% to 17%. In contrast, the employment growth in low- and high-skill occupations has been robust throughout the three decades. In particular, despite their low educational requirements and low pay, employment growth in service occupations has been relatively rapid over the past three decades. Even in the deep recession of 2007 through 2009, during which the number of employed U.S. workers fell by approximately 8 million, low- and high-skill occupations experienced almost no absolute decline in employment. Notably, employment growth in service occupations during the Great Recession was modestly positive—more so, in fact, than the three high-skilled occupations. Thus, while the Great Recession dramatically reduced overall employment in the U.S. economy, it did not fundamentally change the trend of job polarization prevailing throughout this period.

Autor, Levy and Murnane (2003) link job polarization to rapid improvements in the productivity and the decline in the real price of information and communications technologies. They emphasize that the impacts of this technological innovation are two-fold. First, the rapid, secular price decline in the real cost of computing technology creates enormous incentives for employers to substitute expensive labor with information technology for certain workplace tasks. Simultaneously, it creates significant advantages for workers whose skills are complementary to these new innovations. However, as powerful as computers are, they cannot replace all workers. Autor, Levy and Murnane (2003) note that computers are particularly well-suited to replace what they call "routine" tasks: tasks that are highly procedural and rule-based. Routine tasks are characteristic of many middle-skilled jobs, such as book-keeping, clerical work, repetitive production, and monitoring jobs. Acemoglu and Autor (2011) conclude that the substantial declines in clerical and administrative occupations are likely a consequence of the falling price of machine substitutes for these tasks. The process of automation and offshoring of routine tasks, in turn, raises relative demand for workers who can perform complementary non-routine tasks. Thus, the displacement of jobs that are intensive in routine tasks may have contributed to the polarization of employment

by reducing job opportunities in middle-skilled clerical, administrative, production and operative occupations. Jobs that are intensive in either non-routine abstract or non-routine manual tasks, however, are much less susceptible to this process due to the demand for problem-solving, judgment and creativity in the former case, and flexibility and physical adaptability in the latter. Since these jobs are found at opposite ends of the occupational skill spectrum, the consequence may be a partial "hollowing out" of employment opportunities.

2.2 Declining Employment Dynamics

With the recent prevalence of new data sources that allow for the measurement of job and worker flows in the economy, another phenomena has also become apparent. As can be seen in figures 2 and 3 that plot the seasonally adjusted quarterly accession and separation rates, there has been a notable decline in labor market dynamics since 2000. Over the last decade, the accession rate falls from just over 12% to just under 10%, and the separation rate falls from 10.5% to 8.5%. The accession rate is very procyclical, so most of this decline occurs during the recessions. On the other hand, the separation rate does not exhibit strong cyclicality, so the decline has been more gradual.

Both accessions and separations can be decomposed by the worker's employment state. Specifically, accessions can be decomposed into hires where the worker came from nonemployment and hires where the worker came from another employer. Similarly, separations can be decomposed into those where the worker transitions into nonemployment and those where the worker moves to another employer. After this decomposition of the accession and separation rates into their appropriate components, it becomes clear that this decline in overall worker flows is driven by the decline in the movement of workers within the employment state and not by the movement of workers between employment and nonemployment. In their analysis of declining employment dynamics, Hyatt and Spletzer (2013) find that the flows into and out of employment are not the dominant explanation for the trend decline in hires and separations. Rather, the decline in hires and separations is largely driven by a decline in the job-to-job flow rates, and, in addition, the residual category of secondary and short-term jobs.

Much of the motivation for the importance of worker mobility stems from the notion that worker-employer combinations differ in their productive output.[8] Therefore, to find better matches, workers switch jobs. Topel and Ward (1992) find that the cumulative effects of this job switching are associated with substantial wage increases, especially in the first ten years of a worker's career. Bagger, Fontaine, Postel-Vinay and Robin (forthcoming) decompose career wage growth into the part contributed by human capital accumulation and the part due to job search. They find that the portion of wage growth due to job search is highest during the first ten years of a workers career as the worker "shops for jobs" and tries to find a high quality match, but declines fairly quickly. Given that Kahn (2010) has already shown that there are persistent negative consequences

[8] See Burdett (1978) and Jovanovic (1979).

for college graduates who enter the labor force during a recession, this decline in mobility for young workers is even more unsettling. If it becomes harder for workers to find these better jobs, then not only will the lifetime earnings of individuals fall, but our labor market as a whole may not be as resilient to economic downturns. Given the sluggish recovery of the labor market in the last three recessions, understanding the cyclicality of the job-to-job transition rate is equally as important.[9]

3 Empirical Analysis

Understanding what drives the dynamics of worker flows is quite important. When individuals separate from their current employer, some exit the labor force, some become unemployed, and some move directly to a new employer. There is an extensive empirical literature on the movement of workers to and from unemployment.[10] Shimer (2012) finds that since 1987, ninety percent of the fluctuation in the unemployment rate can be attributed to movements in the job finding probability. In other words, recessions are times characterized by the increased difficulty of workers in general to find a job. While the movement of workers into and out of employment is certainly important, there is a growing literature that focuses on understanding how individuals move within employment from employer-to-employer.[11]

The forces driving job polarization directly alter the demand for skill, which could then affect the dynamics of worker flows. To analyze how job polarization relates to this decline in worker mobility, I will use two sources of data: the American Community Survey (ACS) and the Longitudinal Employer Household Dynamics (LEHD) infrastructure files developed and maintained by the U.S. Census Bureau.[12] Unfortunately, occupation of the worker is not available in LEHD. Therefore, while previous research on employment dynamics using LEHD do try to account for worker and firm heterogeneity, they cannot directly speak to the relationship between job polarization and declining worker mobility because there is no way to proxy for occupation using only the variables in LEHD. To work around this problem, I will supplement the data in LEHD with data from the ACS. Thus, the analysis dataset in this paper contains all individuals present in both ACS and LEHD for a given year.[13] The ACS gives me the occupation codes I need to analyze the mobility data through the lens of job polarization, while the matched structure of LEHD allows me to track worker flows and the labor market history of individuals. This means that I can obtain measures

[9] Nagypal (2008) and Kraus and Lubik (2010) both find that on-the-job search acts as an amplification mechanism in generating large fluctuations in labor market tightness. In both cases, on-the-job search causes firms to increase vacancy postings.

[10] See, for example, Blanchard and Diamond (1990); Hall (2005); Shimer (2005a,b, 2012); Davis, Faberman and Haltiwanger (2006); Fujita and Ramey (2009); Rogerson and Shimer (2011).

[11] In particular, see Fallick and Fleischman (2004) who use the format change in the CPS in 1994 to calculate the job-to-job transition rate; Bjelland, Fallick, Haltiwanger and McEntarfer (2011) and Hyatt and McEntarfer (2012a,b) use the same matched employer-employee dataset as in this paper.

[12] See Abowd, Haltiwanger and Lane (2004) and Abowd et al. (2009) for the details on how this set of infrastructure files were built.

[13] Ideally, one would use LEHD as the frame and impute occupation using the data available from ACS, however that is beyond the scope of this paper.

of tenure and labor market experience. Thus, this combined dataset will allow me to study how employment dynamics have varied in a polarizing labor market.

3.1 Sample Selection

The main variable of interest from the ACS is the worker's occupation code.[14] Since I do not need occupation at the level of detail in ACS, they are aggregated into the following ten broad categories, as defined in Acemoglu and Autor (2011):[15]

1. Managers
2. Professionals
3. Technicians
4. Sales
5. Office and administration
6. Production, craft and repair
7. Operators, fabricators and laborers
8. Protective services
9. Food preparation, buildings and grounds, and cleaning
10. Personal care and personal services

Individuals who report holding an occupation in agriculture or the military are excluded from the sample. These ten occupation categories can be further aggregated to skill types: high (1,2,3), middle (4,5,6,7), and low (8,9,10).

The individuals in ACS can be matched to observations in LEHD through a person identifier (scrambled from an individual's SSN). The matched structure of LEHD allows me to observe the labor market activity of workers for extended periods of time, even though they are only in ACS for one year. In particular, I can observe when individuals separate from their employers and when they transition into nonemployment. The coverage of this dataset is extensive, and the large sample size allows me to conduct an empirical analysis with minimal parametric assumptions. Further, the data comes from administrative sources, so it is not plagued with reporting errors that are typical of household survey data.

Built from administrative records, LEHD is developed and maintained by the U.S. Census Bureau (Abowd et al., 2009). The LEHD program is a collaboration between the Census Bureau and its state partners. The states provide administrative records from their unemployment insurance (UI) program. Thus, the universe of the LEHD infrastructure files is individual-employer pairs (jobs) covered by the state UI reporting requirements. Currently, all 50 states and DC participate in this program. Coverage of the state UI system is broad such that over 92 percent of all private employment in the entire economy is covered under LEHD (Abowd and Vilhuber, 2011). In the first

[14]The demographic variables, such as age and gender, used in the analysis before are from ACS and not from LEHD.

[15]The occupation codes first need to be recoded so they are longitudinally consistent from 2000 to 2010. This crosswalk comes from Autor and Dorn (2013) and can be found at `http://www.cemfi.es/~dorn/data.htm`. To aggregate occupation to the ten broad categories, see: `http://economics.mit.edu/faculty/dautor/data/autor`.

year quarter observation, 1990Q1, eight states were part of the partnership. States continued to join throughout the 1990s such that, by 2000, only eight states were *not* yet part of the partnership. Therefore, the coverage of the LEHD program is quite extensive in the 2000s, making this dataset ideal for analyzing the period leading up to, during, and after the Great Recession. Thus, individuals in my sample meet the following criteria: for years 2000 to 2010, (i) the individual was sampled for ACS and is observed in LEHD, (ii) the individual is between the age of 18 and 60 (inclusive), and (iii) the individual's occupation is not in agriculture or the military. This gives me about 13.7 million person year observations.

Table 1 provides summary statistics for the 11 years of data. It includes the following statistics: (i) average real annual earnings from UI (2000 dollars), (ii) average years of tenure, (iii) average years of labor market experience, (iv) average age, (v) proportion of sample that is male, (vi) proportion of sample that is non-Hispanic white, (vii) proportion of sample that are high school graduates, and (viii) proportion of sample that are college graduates.[16] Notice that average tenure (in years) has been increasing over this last decade from 2.95 years to 4.89 years, a 65.76% increase. This appears to be consistent with the observed decline in transitions between employers as seen in the decline in the rate of accessions from employment (figure 2) and the rate of separations to employment (figure 3). It is interesting to note that average years of labor market experience has also been increasing during the 2000s, more than doubling from 2000 to 2010. Further, the average age of the workers is increasing, and the workforce is becoming more educated with more representation for women and minorities.

Job polarization is still an ongoing process and this can be seen in table 2. It lists the employment share by skill type. Notice that the share of employment in middle-skill occupations steadily declined during the 2000s, even during the Great Recession. However, over this same period, the employment share in high- and low-skill occupations has been increasing. Table 3 further disaggregates employment by occupation categories, averaged over three time periods: (i) 2000-2003, (ii) 2004-2007, and (iii) 2008-2010. Notice that all of the middle-skill occupation categories exhibit reductions in their employment share in the Great Recession, while all of the occupation categories in the high- and low-skill types all experienced increases in their share of employment.

Tables 4 through 7 presents the same set of descriptive statistics in table 1 disaggregated by occupation categories and averaged over the same three time periods. Notice from table 4 that both average age and earnings monotonically increase with skill type. In other words, workers in high-skill occupations tend to be older and they earn more than middle- and low-skill workers. Similarly, average tenure and labor market experience is also increasing in skill type, as seen in table 5. Tables 6 and 7 show that minorities tend to work in the low-skill service occupations and educational attainment increases with skill. The gender variation across occupation categories is quite interesting. Majority of the workers in high- and low-skill occupations are women, while men

[16] Note that individuals who work only part of the year are included when calculating these statistics. In particular, average earnings here is *not* average full-year earnings.

are the majority in middle-skill occupations.

3.2 Accessions and Separations

Exploiting the matched structure of LEHD, I can analyze the accession and separation rate by occupation. Accessions and separations are tabulated and converted to rates following the definitions in Abowd et al. (2009). The rates are then seasonally adjusted at a quarterly frequency.

Figure 4 plots the accession rate by the ten occupation categories, and figure 5 aggregates this to the three skill types. Notice that all of the skill types exhibit this trend decline in the accession rate. However, the magnitude of this decline is smallest for workers in middle-skill occupations. Figure 6 and figure 7 decompose accessions into those where the workers were hired from nonemployment and those where the worker was previous employed by occupation categories and skill type, respectively. While the fall in the accession rate still seems to be driven by a decline in workers moving between employers, the hiring of workers from nonemployment also seems to be trending downward for high-skill occupations.

Figure 8 plots the separation rate by the ten occupation categories, and figure 9 aggregates this to the three skill types. Once again, notice that all of the skill types exhibit this trend decline in the separation rate. These figures also make it clear that the employment loss in the Great Recession came disproportionately from middle-skill workers. Low-skill workers did not see an increase in the separation rate in this last downturn. In fact, the separation rate for low-skill workers has been declining since the start of the recession. Figure 10 and figure 11 decompose separations into those where the workers transition to nonemployment and those where the worker moves to another employer by occupation categories and skill type, respectively. All three skill types have experienced a very sharp decline in the separation rate to another employer. Separations to nonemployment for low- and high-skill workers has remained relatively constant, even during downturns. The separation rate for middle-skill workers to nonemployment is far more cyclically sensitive, especially during the Great Recession.

These figures seem to indicate a simultaneous decline in the rate of hires and separations for high- and low-skill occupations. The middle-skill occupations however, seem to be facing a slow down in hiring, but not necessarily a slow down in the separation rate.

3.3 Empirical Hazard

The key difference between the skill types is particularly striking in the separation rate. Since I can tabulate tenure in LEHD, another way to analyze separations is through the hazard function. For each quarter of accumulated tenure, the empirical hazard is defined as:

$$\text{hazard} = \frac{\text{separations}}{\text{employment}} \tag{1}$$

Like the separation rate, I will also decompose the hazard function into separations to nonemployment and separations to another employment and plot these hazard functions separately. These hazard functions are first calculated year by year, however they are then smoothed over the following time periods: (i) 2000-2003, (ii) 2004-2007, and (iii) 2008-2010.

Figure 12 plots the aggregate hazard function by years of tenure for the three time periods. Notice that the hazard function has remained relatively stable, even during the Great Recession. To understand why this is the case, figure 13 plots the aggregate hazard function when moving to nonemployment and the aggregate hazard function when moving to another employer. Notice that during the Great Recession, there was a simultaneous increase in the probability of separating to nonemployment and a decrease in the probability of separating to another employer. Thus, this results in very little change in the overall hazard function.

Figure 14 plots the empirical hazard function by skill type. Like the aggregate hazard function, there seems to be very little change across the three time periods, especially for the middle-skill workers. The hazard function falls a bit during the Great Recession for high- and low-skill workers, especially for those with less than four years of tenure. This would indicate that the decline in workers moving to another employer dominates very slightly over the increase in workers separating to nonemployment. Figure 15 decomposes the empirical hazard function into separations into nonemployment and separations to another employer by skill type. Once again, it becomes clear that the employment loss in this last recession came disproportionately from the middle. The probability of separating to nonemployment barely increases for high- and low-skill workers. However, increases substantially for middle-skill workers, even for workers with six years of tenure. All three skill types saw a fall in the probability of separating for another employer.

4 Conclusion

This paper sets out to understand the relationship between two labor market phenomena: job polarization and the decline in employment dynamics. To do this, I exploit data from two sources, ACS and LEHD, such that I can analyze worker flows disaggregated by occupation. While all three skill types are experiencing trend declines in the accession and separation rates, decomposing these rates by the worker's employment status reveals a more complicated story. Further, the skill types were differentially affected by the Great Recession, with middle-skill workers being especially hard hit. This is especially apparent when analyzing separations. Most of the increase in the separation rate to nonemployment during this last downturn came from the middle.

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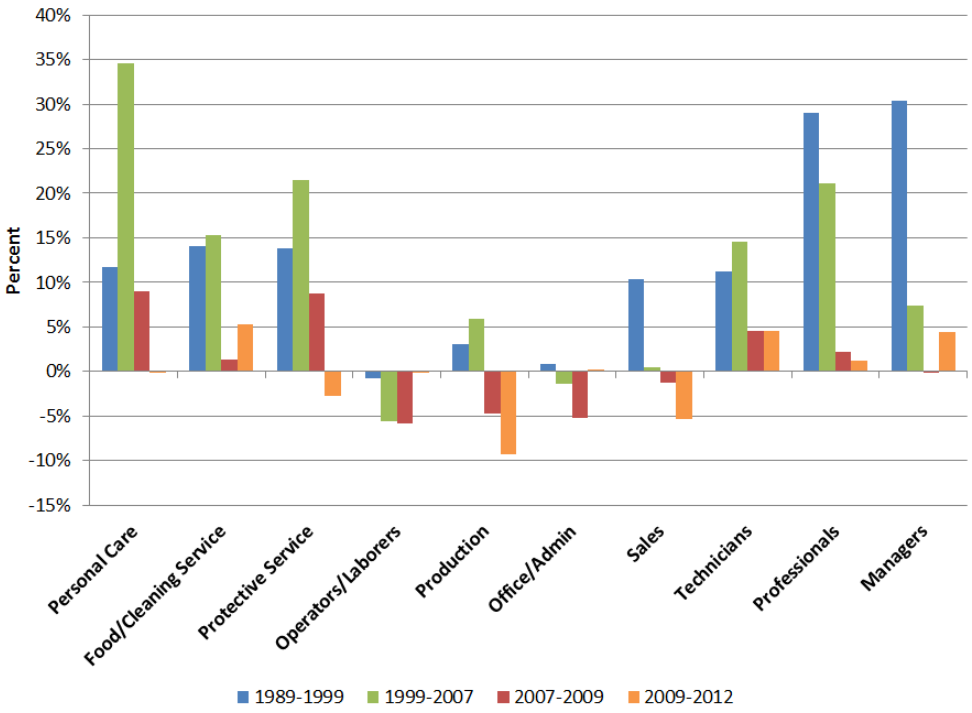
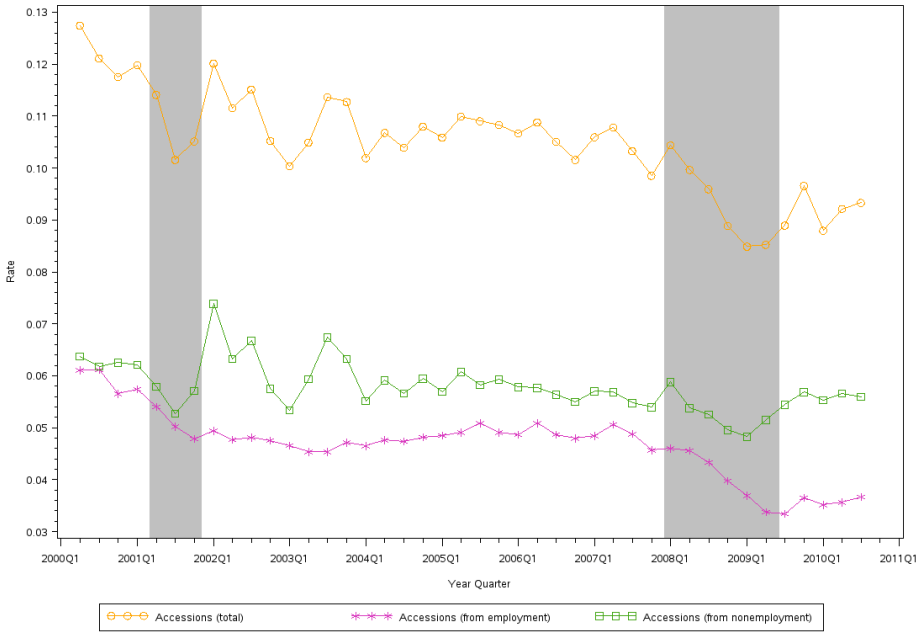
Figure 1: Employment Growth by Occupational Groups



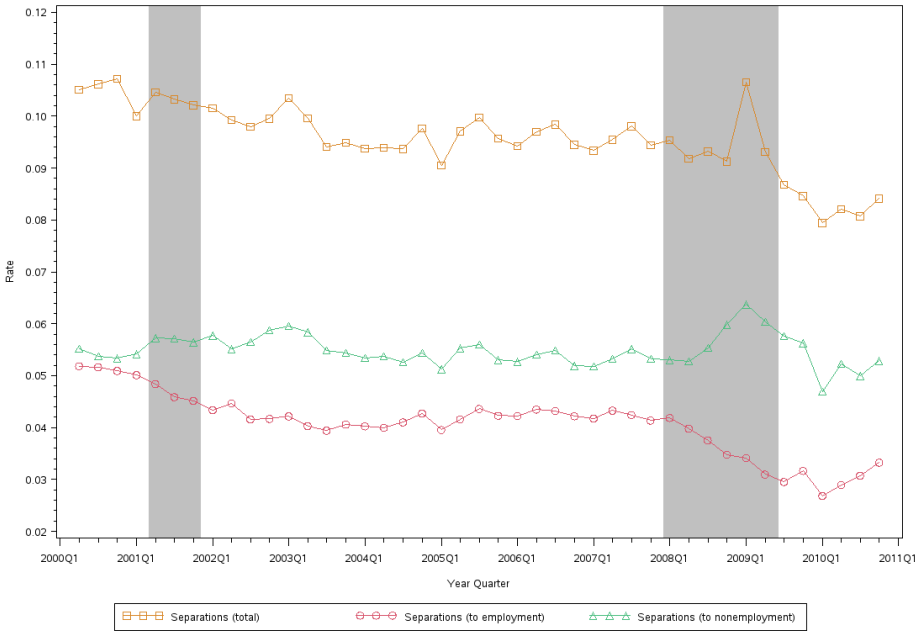
Notes: Author's calculation with data from the Current Population Survey, March Supplement, 1989-2012. The figure plots employment growth by ten broad occupation categories for four time intervals: the 1990s, the 2000s prior to the Great Recession, the Great Recession and its recovery. The first three occupation categories encompass the low-skill occupations, the next four middle-skill occupations, and the last three high-skill occupations. Notice that employment growth has been concentrated at the tails of the skill distribution, resulting in this "hollowing out" of the middle.

Figure 2: Accession Rate (Seasonally Adjusted)



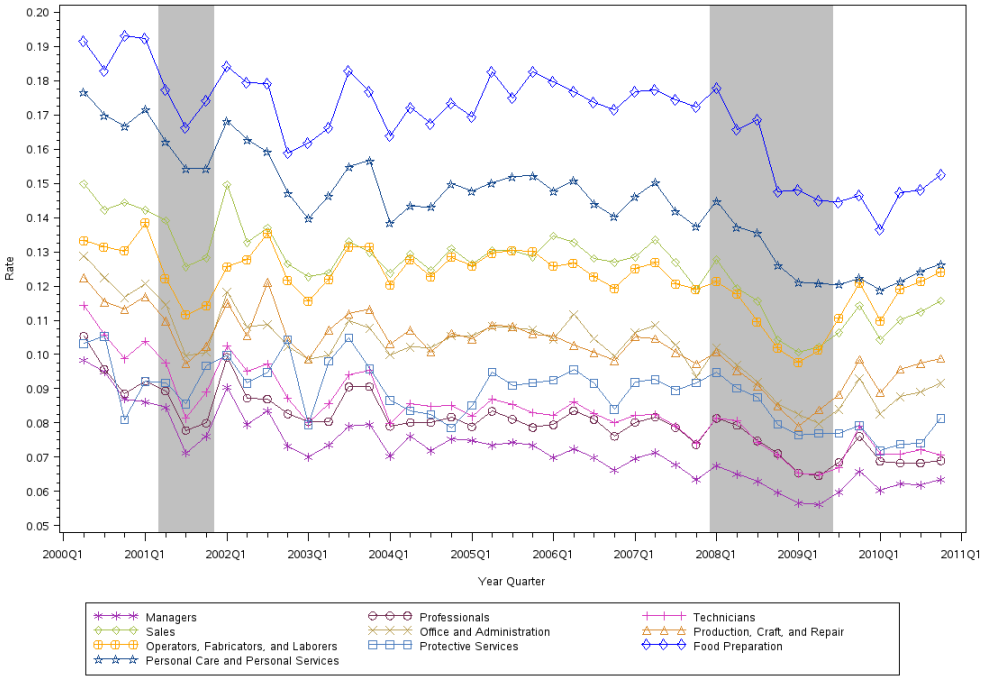
Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. The figure plots the seasonally adjusted accession rate for all individuals. This accession rate is further decomposed into accessions from nonemployment and accessions from another employer.

Figure 3: Separation Rate (Seasonally Adjusted)



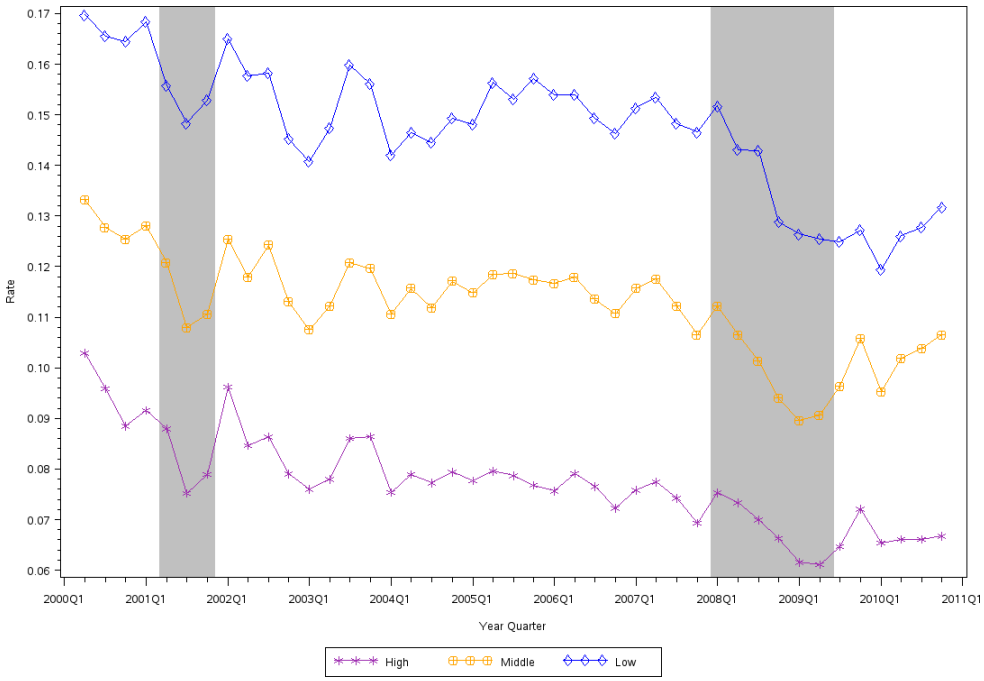
Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. The figure plots the seasonally adjusted separation rate for all individuals. This separation rate is further decomposed into separations to nonemployment and separations to another employer.

Figure 4: Accession Rate by Occupation Categories (2000-2010)



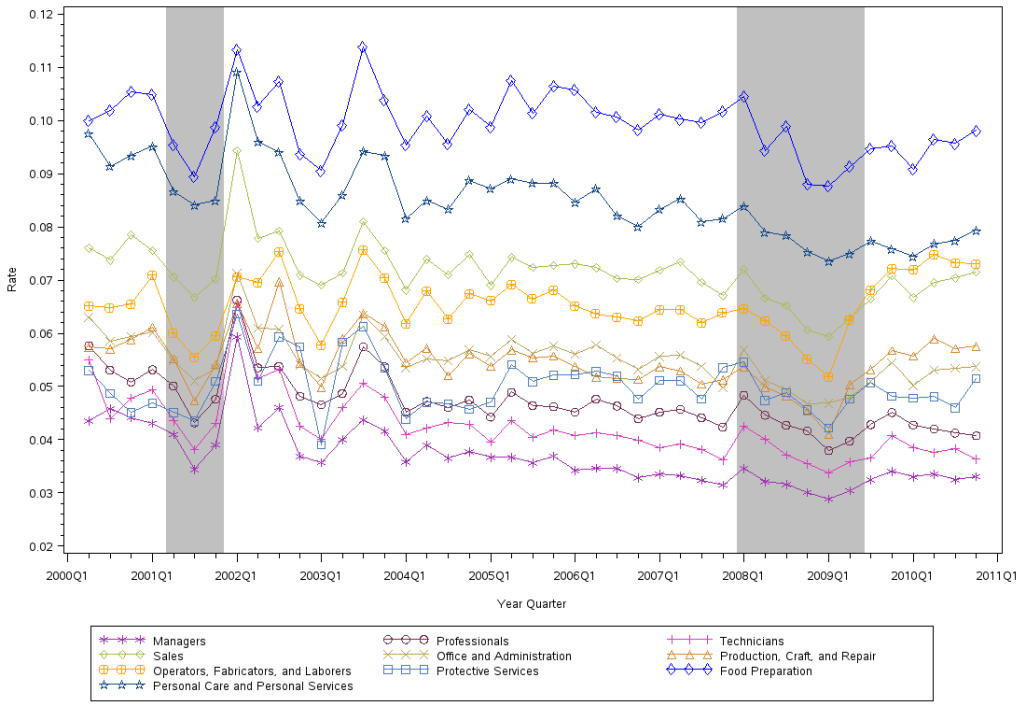
Notes: Author's calculation from ACS and LEHD.

Figure 5: Accession Rate by Skill Type (2000-2010)

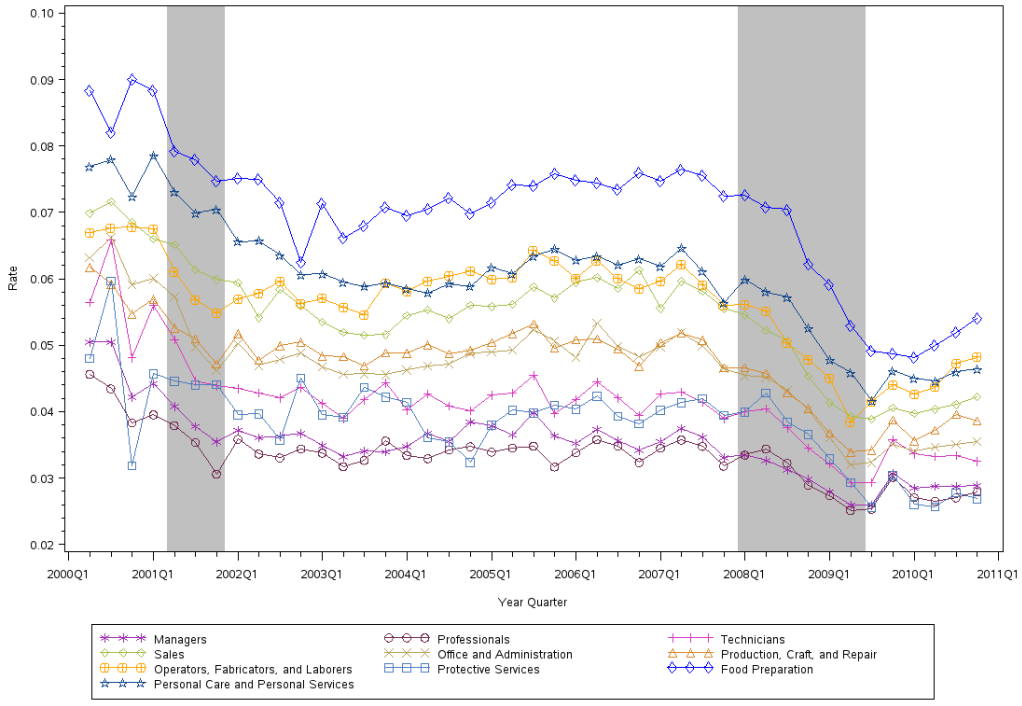


Notes: Author's calculation from ACS and LEHD.

Figure 6: Accession Rate by Occupation Categories (2000-2010)



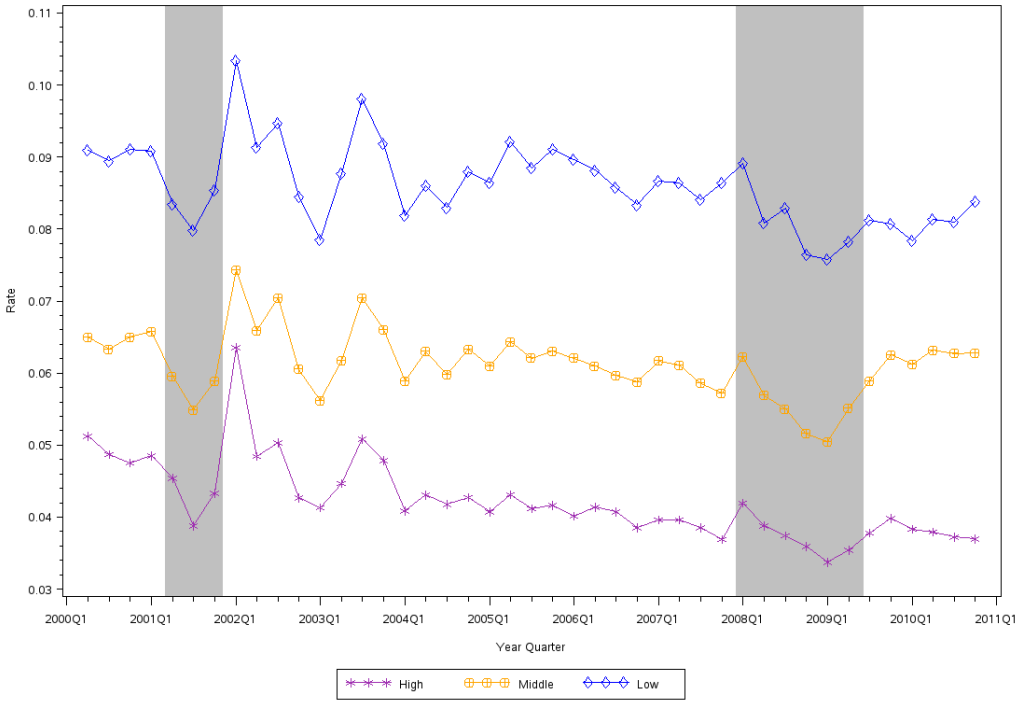
(a) Accessions from Nonemployment



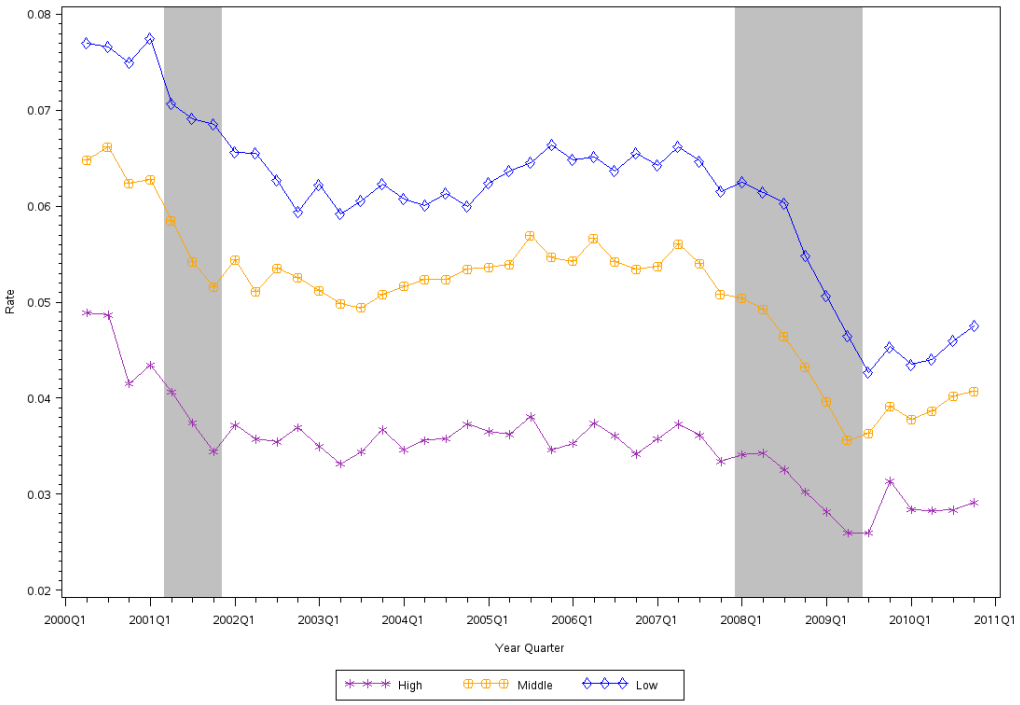
(b) Accessions from Employment

Notes: Author's calculation from ACS and LEHD

Figure 7: Accession Rate by Skill Type (2000-2010)



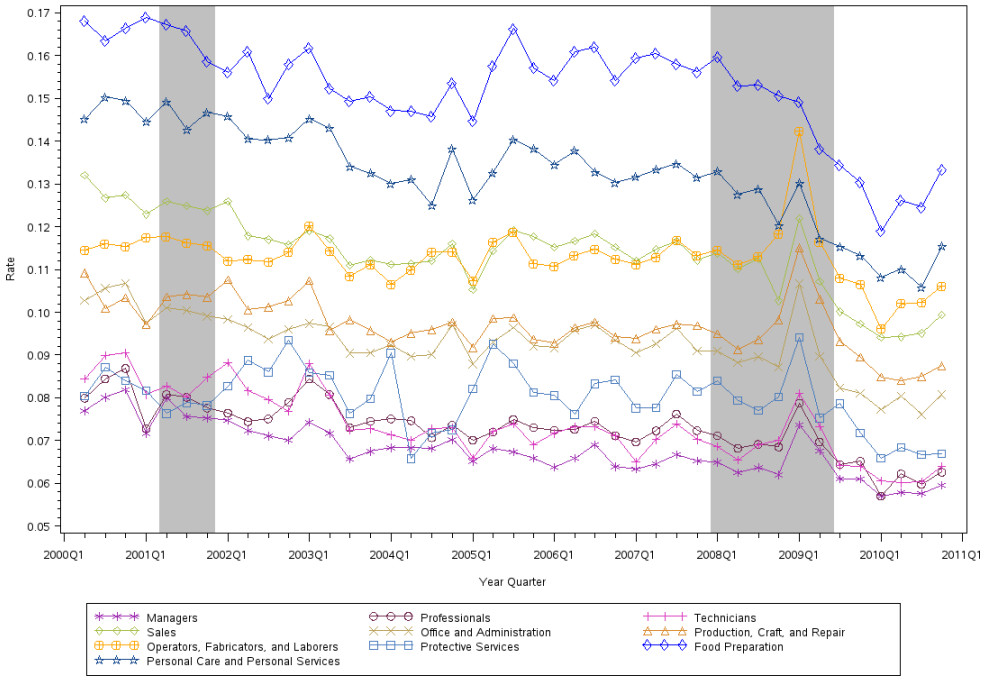
(a) Accessions from Nonemployment



(b) Accessions from Employment

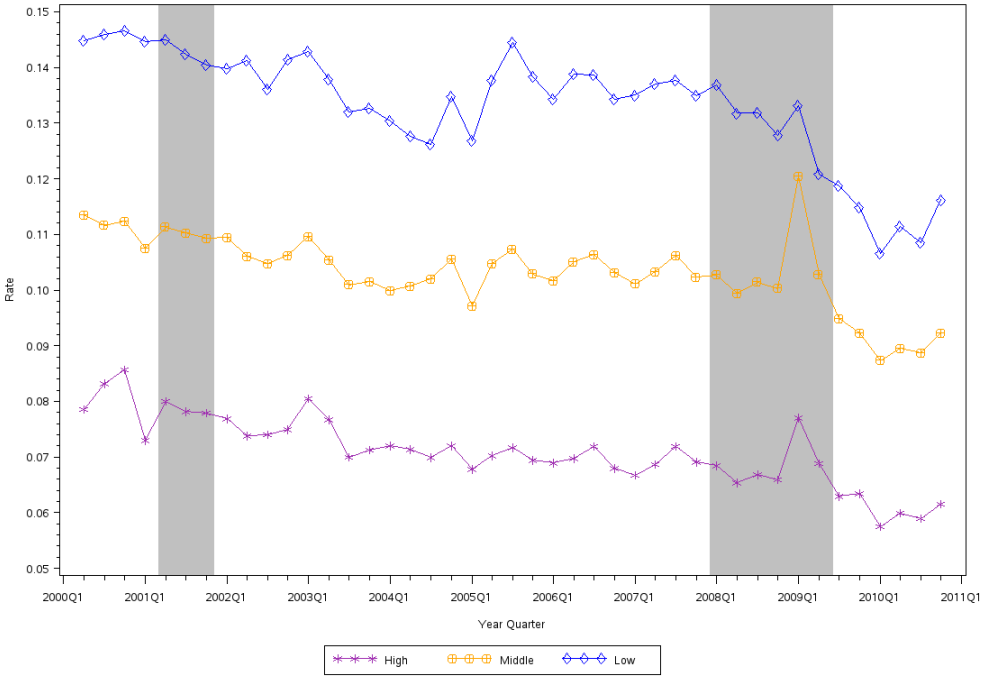
Notes: Author's calculation from ACS and LEHD

Figure 8: Separation Rate by Occupation Categories (2000-2010)



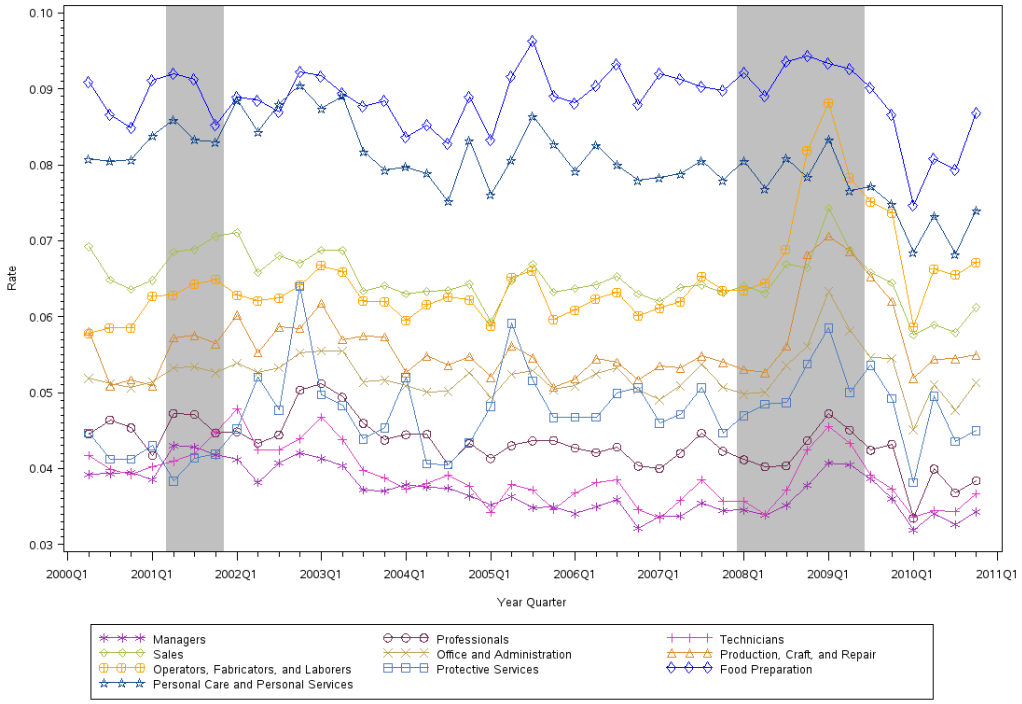
Notes: Author's calculation from ACS and LEHD.

Figure 9: Separation Rate by Skill Type (2000-2010)

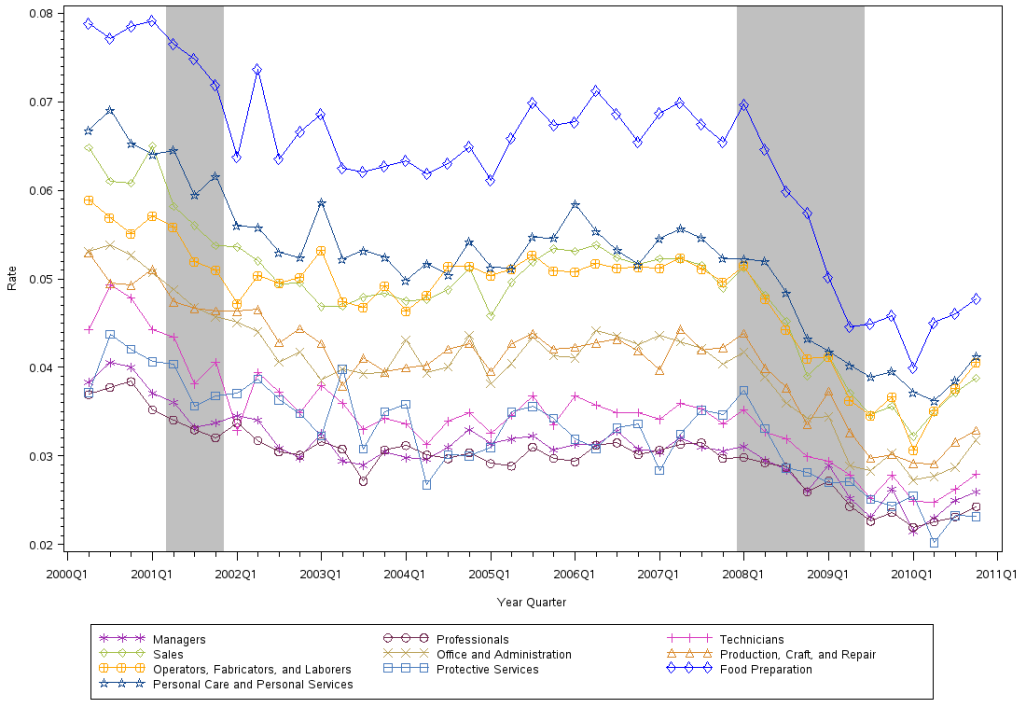


Notes: Author's calculation from ACS and LEHD.

Figure 10: Separation Rate by Occupation Categories (2000-2010)



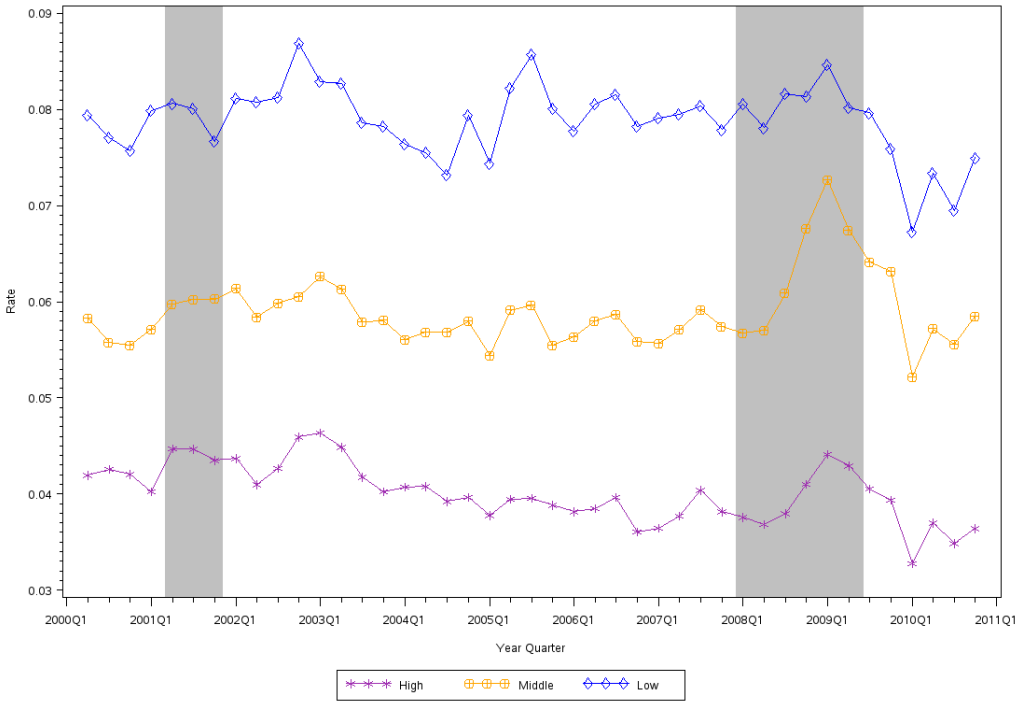
(a) Separations from Nonemployment



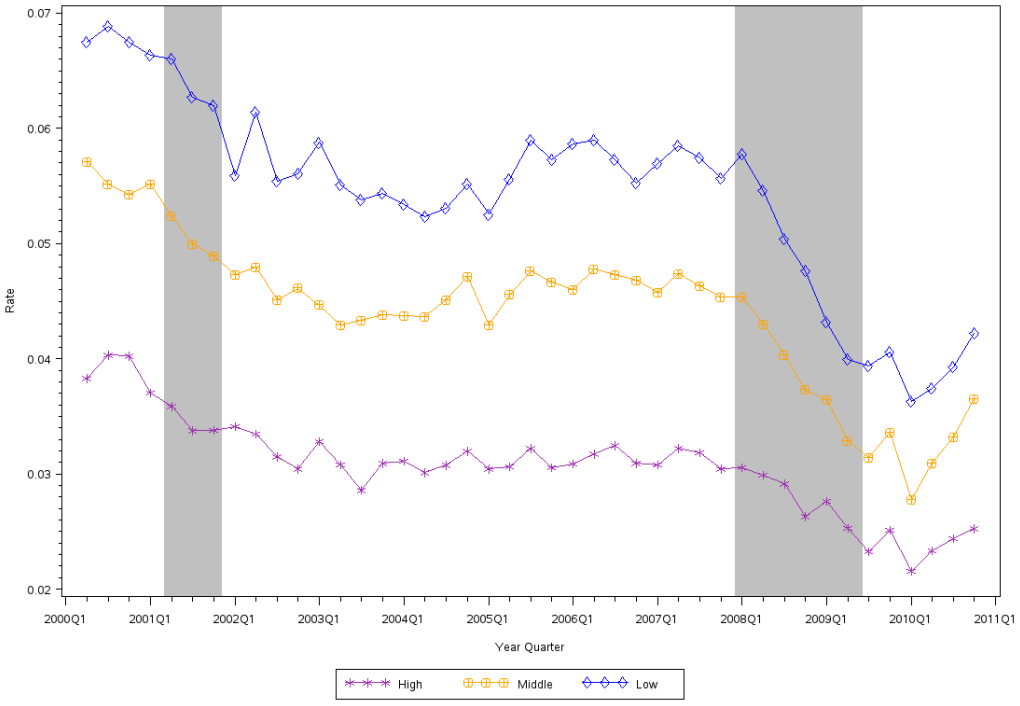
(b) Separations from Employment

Notes: Author's calculation from ACS and LEHD

Figure 11: Separation Rate by Skill Type (2000-2010)



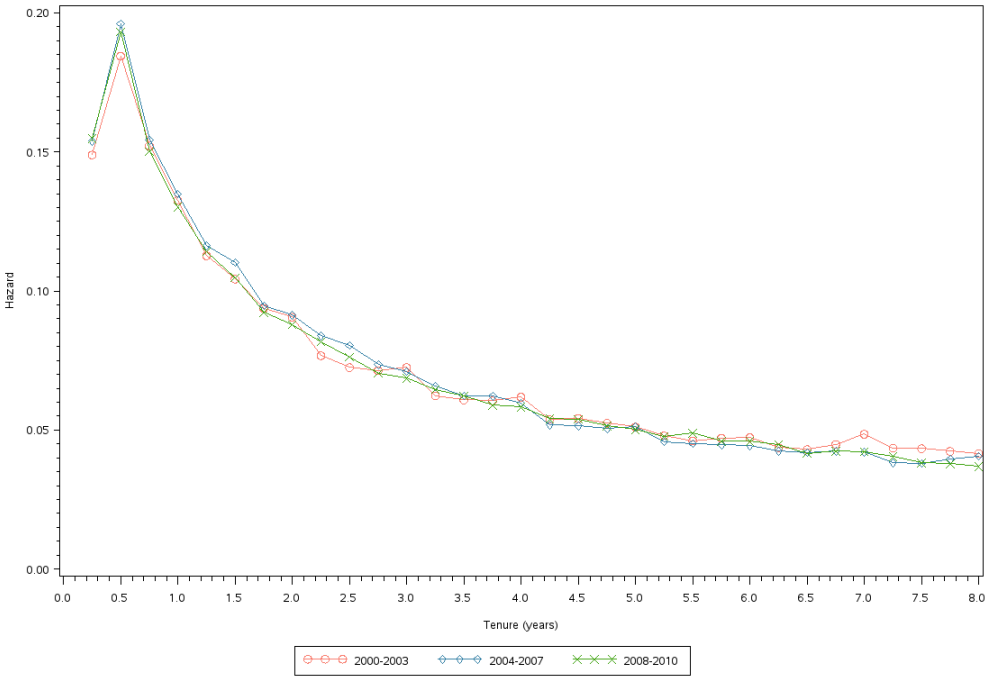
(a) Separations from Nonemployment



(b) Separations from Employment

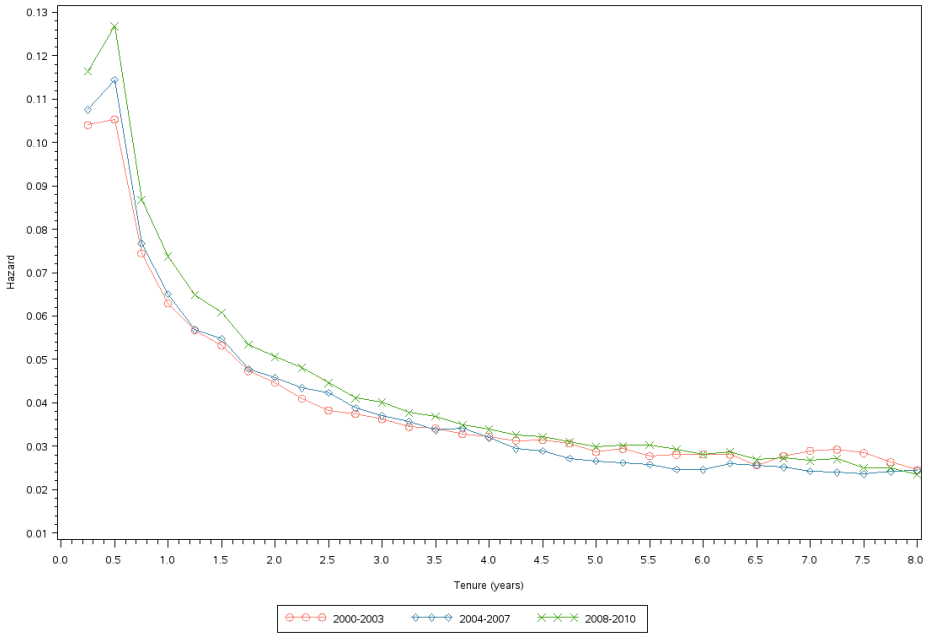
Notes: Author's calculation from ACS and LEHD

Figure 12: Empirical Hazard Function

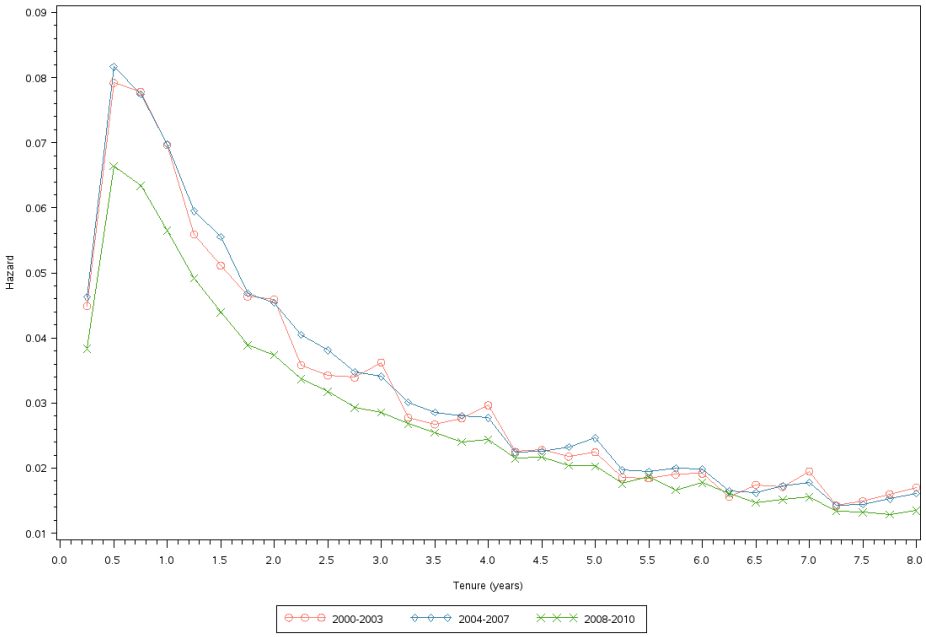


Notes: Author's calculation from ACS and LEHD.

Figure 13: Empirical Hazard Function



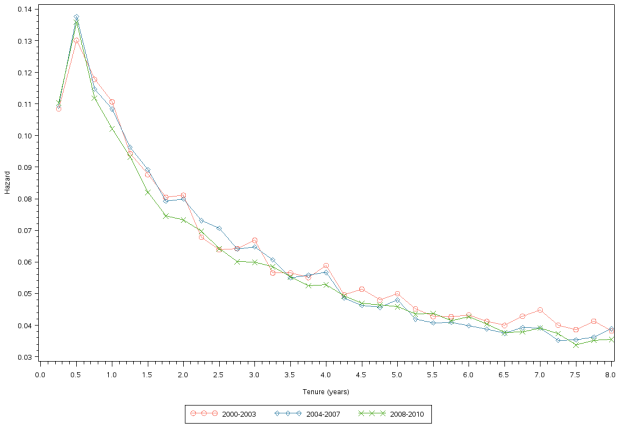
(a) Separations to Nonemployment



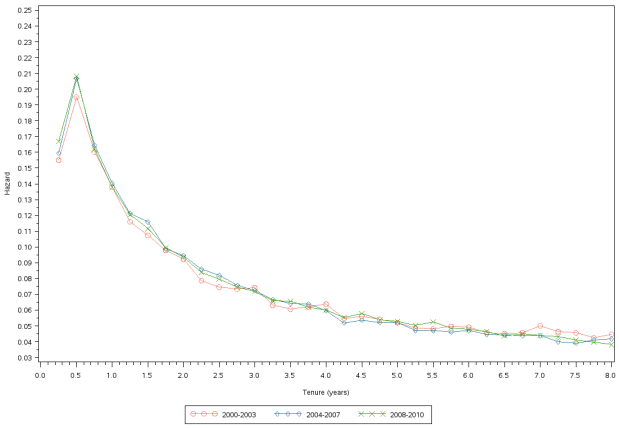
(b) Separations to Employment

Notes: Author's calculation from ACS and LEHD.

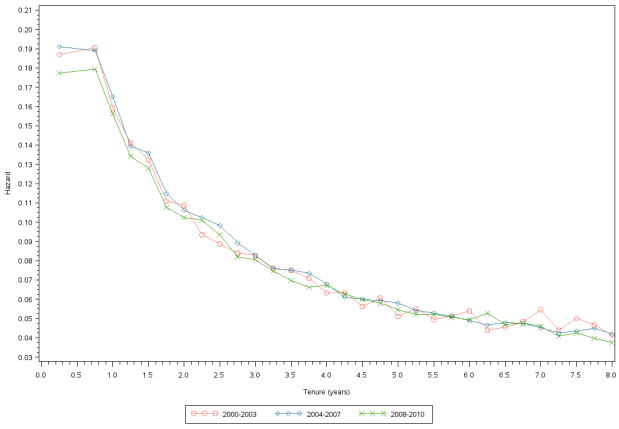
Figure 14: Empirical Hazard Function by Skill Type



(a) High



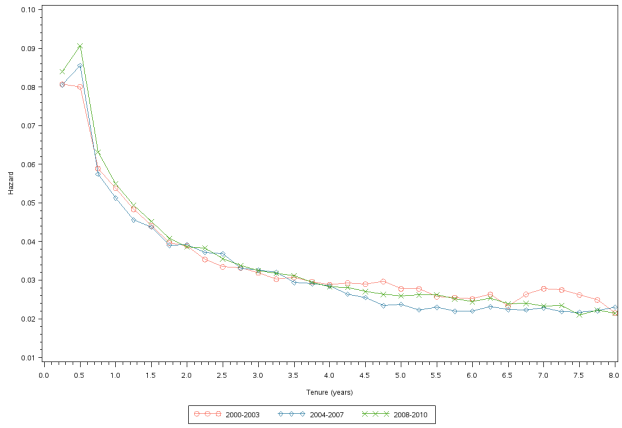
(b) Middle



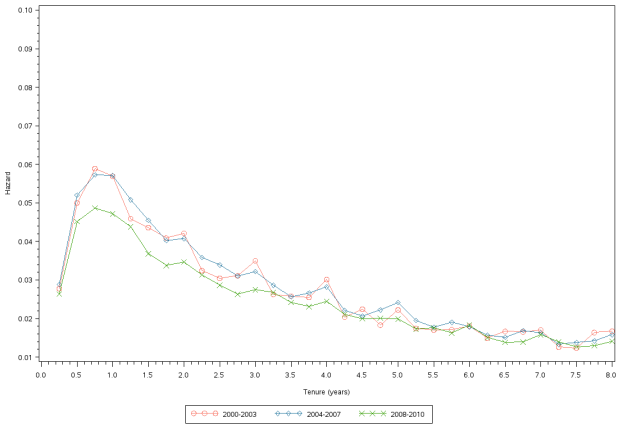
(c) Low

Notes: Author's calculation from ACS and LEHD.

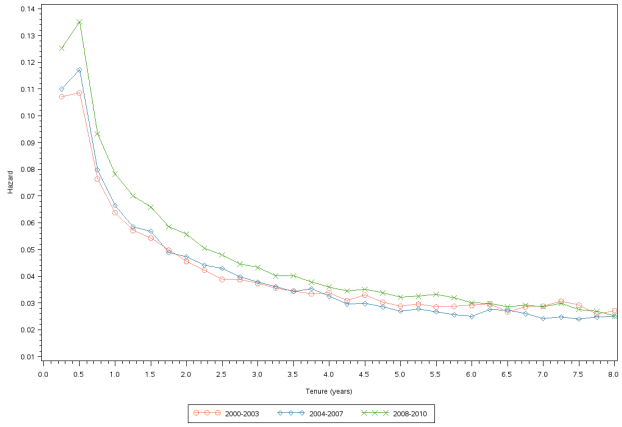
Figure 15: Empirical Hazard Function by Skill Type



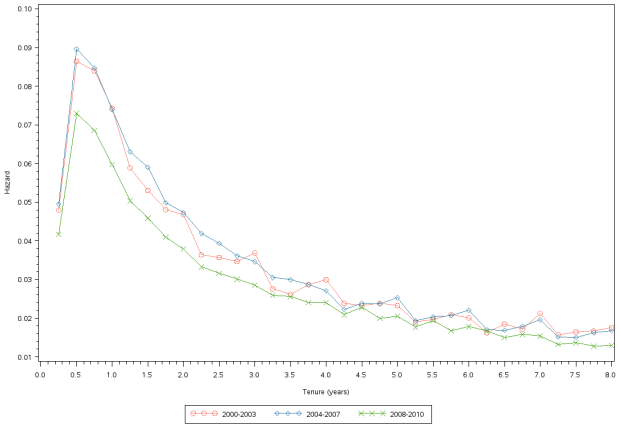
(a) Separations to Nonemployment (High)



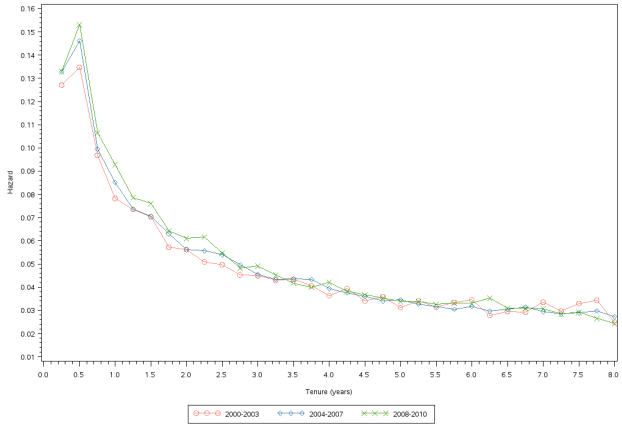
(b) Separations to Employment (High)



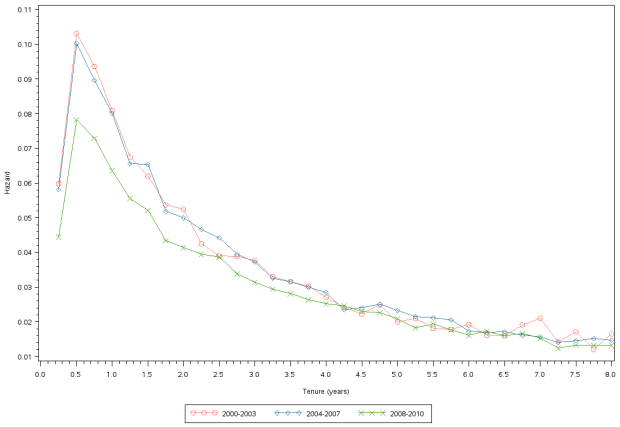
(c) Separations to Nonemployment (Middle)



(d) Separations to Employment (Middle)



(e) Separations to Nonemployment (Low)



(f) Separations to Employment (Low)

Notes: Author's calculation from ACS and LEHD.

Table 1: Descriptive Statistics

Year	Earnings	Tenure	Experience	Age	Male	White	HS	College
2000	$31,000	2.95	5.47	38.1	50.9%	72.9%	88.3%	27.4%
2001	$31,200	3.20	6.11	38.2	50.9%	72.3%	88.8%	27.6%
2002	$31,200	3.39	6.61	38.4	50.8%	72.3%	90.0%	28.6%
2003	$31,400	3.62	7.20	38.6	50.7%	72.1%	90.2%	29.0%
2004	$32,000	3.83	7.80	38.7	50.6%	71.5%	90.5%	29.2%
2005	$31,200	3.95	8.29	38.5	50.6%	71.2%	90.9%	29.1%
2006	$31,900	4.11	8.85	38.6	50.5%	71.0%	91.3%	29.6%
2007	$32,300	4.23	9.40	38.6	50.5%	70.5%	91.5%	29.8%
2008	$32,100	4.42	9.98	38.8	50.5%	70.3%	91.8%	30.5%
2009	$31,500	4.68	10.6	39.0	49.8%	69.0%	92.1%	31.2%
2010	$32,000	4.89	11.2	39.3	49.8%	68.5%	92.4%	31.9%

Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. The table reports the following statistics by year: (i) average real annual earnings (2000 dollars), (ii) average years of tenure, (iii) average years of labor market experience, (iv) average age, (v) proportion male, (vi) proportion non-Hispanic white, (vii) proportion high school graduates, (viii) proportion college graduates.

Table 2: Employment Share

Year	High	Middle	Low
2000	33.66%	51.62%	14.73%
2001	33.77%	50.99%	15.24%
2002	34.30%	50.07%	15.63%
2003	34.15%	49.99%	15.86%
2004	34.06%	50.01%	15.93%
2005	33.75%	49.97%	16.27%
2006	34.45%	49.12%	16.43%
2007	34.88%	48.40%	16.72%
2008	35.00%	47.74%	17.26%
2009	35.28%	47.02%	17.70%
2010	35.52%	46.54%	17.94%

Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. This table reports the share of employment by skill type. Notice that the share of employment in middle-skill occupations has been declining throughout the decade while the employment share in high- and low-skill occupations has been increasing.

Table 3: Employment Share by Occupation Categories

	Employment Share		
	2000-2003	*2004-2007*	*2008-2010*
High Skill	33.97%	34.29%	35.26%
Managers	14.25%	14.23%	14.56%
Professionals	15.69%	16.08%	16.61%
Technicians	4.03%	3.98%	4.10%
Middle Skill	50.65%	49.37%	47.11%
Sales	11.37%	11.55%	11.36%
Office and admin	15.92%	15.42%	14.98%
Production, craft and repair	10.72%	10.17%	9.31%
Operators, fabricators and laborers	12.63%	12.23%	11.45%
Low Skill	15.38%	16.34%	17.63%
Protective services	2.21%	2.29%	2.42%
Food prep, buildings and grounds, cleaning	7.49%	8.03%	8.55%
Personal care and personal services	5.67%	6.03%	6.65%

Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. This table reports the share of employment by occupation category, averaged over the indicated years.

Table 4: Average Age and Earnings by Occupation Categories

	Age		
	2000-2003	*2004-2007*	*2008-2010*
Aggregate	38.3	38.6	39.0
High Skill	40.4	41.0	41.1
Managers	41.2	41.8	42.1
Professionals	40.2	40.5	40.6
Technicians	38.6	39.3	39.8
Middle Skill	37.8	38.0	38.7
Sales	36.1	36.1	36.3
Office and admin	37.9	38.3	38.9
Production, craft and repair	38.8	39.3	40.3
Operators, fabricators and laborers	38.3	38.6	39.6
Low Skill	35.6	35.5	35.7
Protective services	37.9	38.0	38.2
Food prep, buildings and grounds, cleaning	34.0	33.8	34.0
Personal care and personal services	36.7	36.8	37.1

	Earnings		
	2000-2003	*2004-2007*	*2008-2010*
Aggregate	$31,200	$31,850	$31,867
High Skill	$47,600	$49,575	$49,767
Managers	$54,825	$58,725	$57,900
Professionals	$43,175	$44,025	$45,100
Technicians	$39,000	$39,125	$40,033
Middle Skill	$24,975	$25,000	$24,633
Sales	$29,800	$30,625	$29,100
Office and admin	$20,400	$20,225	$20,700
Production, craft and repair	$29,925	$29,650	$29,667
Operators, fabricators and laborers	$22,225	$21,725	$21,267
Low Skill	$15,625	$15,325	$15,467
Protective services	$32,000	$32,550	$33,067
Food prep, buildings and grounds, cleaning	$12,175	$11,800	$11,800
Personal care and personal services	$13,825	$13,425	$13,733

Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. The top panel of this table reports average age by occupation category, averaged over the indicated years. The bottom panel of this table reports average real earnings from UI (2000 dollars) by occupation category, averaged over the indicated years. Note that the earnings measure here is *not* full year.

Table 5: Average Tenure and Labor Market Experience by Occupation Categories

	Tenure		
	2000-2003	*2004-2007*	*2008-2010*
Aggregate	3.29	4.03	4.66
High Skill	3.75	4.71	5.41
Managers	3.79	4.75	5.48
Professionals	3.81	4.79	5.48
Technicians	3.37	4.26	4.92
Middle Skill	3.16	3.83	4.48
Sales	2.80	3.35	3.88
Office and admin	3.20	3.97	4.64
Production, craft and repair	3.50	4.28	5.10
Operators, fabricators and laborers	3.14	3.74	4.38
Low Skill	2.70	3.22	3.67
Protective services	3.96	5.04	5.84
Food prep, buildings and grounds, cleaning	2.45	2.84	3.21
Personal care and personal services	2.55	3.05	3.46

	Labor Market Experience		
	2000-2003	*2004-2007*	*2008-2010*
Aggregate	6.35	8.59	10.59
High Skill	6.90	9.47	11.67
Managers	7.16	9.92	12.27
Professionals	6.70	9.17	11.23
Technicians	6.72	9.21	11.33
Middle Skill	6.25	8.41	10.44
Sales	5.85	7.81	9.47
Office and admin	6.30	8.49	10.50
Production, craft and repair	6.63	9.01	11.30
Operators, fabricators and laborers	6.24	8.41	10.54
Low Skill	5.47	7.22	8.76
Protective services	6.59	8.95	11.00
Food prep, buildings and grounds, cleaning	5.15	6.67	8.04
Personal care and personal services	5.46	7.29	8.89

Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. The top panel of this table reports average years of tenure by occupation category, averaged over the indicated years. The bottom panel of this table reports average years of labor market experience by occupation category, averaged over the indicated years.

Table 6: Demographic Characteristics by Occupation Categories

	Males		
	2000-2003	*2004-2007*	*2008-2010*
Aggregate	50.8%	50.6%	50.0%
High Skill	47.1%	46.3%	45.6%
Managers	51.6%	51.7%	51.0%
Professionals	41.9%	40.5%	39.6%
Technicians	51.1%	50.3%	50.7%
Middle Skill	55.9%	56.3%	56.2%
Sales	48.6%	48.0%	47.8%
Office and admin	23.3%	24.1%	25.3%
Production, craft and repair	88.7%	88.7%	88.1%
Operators, fabricators and laborers	75.8%	77.8%	78.9%
Low Skill	42.4%	42.3%	42.7%
Protective services	77.8%	76.3%	76.6%
Food prep, buildings and grounds, cleaning	51.3%	51.4%	52.4%
Personal care and personal services	16.8%	17.1%	17.8%

	Non-Hispanic Whites		
	2000-2003	*2004-2007*	*2008-2010*
Aggregate	72.4%	71.1%	69.3%
High Skill	78.6%	77.2%	75.5%
Managers	79.9%	78.4%	76.7%
Professionals	78.6%	77.3%	75.4%
Technicians	73.7%	72.9%	71.2%
Middle Skill	71.2%	69.7%	68.0%
Sales	75.2%	73.1%	70.5%
Office and admin	70.7%	69.5%	67.6%
Production, craft and repair	75.0%	73.8%	72.6%
Operators, fabricators and laborers	64.9%	63.6%	62.2%
Low Skill	62.8%	62.2%	60.4%
Protective services	67.2%	66.4%	65.5%
Food prep, buildings and grounds, cleaning	64.4%	64.1%	62.2%
Personal care and personal services	59.2%	58.2%	56.1%

Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. The top panel of this table reports the fraction of males in each occupation category, averaged over the indicated years. The bottom panel of this table reports the fraction of non-Hispanic whites in each occupation category, averaged over the indicated years.

Table 7: Education Characteristics by Occupation Categories

	High School Graduates		
	2000-2003	*2004-2007*	*2008-2010*
Aggregate	89.3%	91.1%	92.1%
High Skill	98.1%	98.6%	98.8%
Managers	97.2%	97.8%	98.2%
Professionals	99.1%	99.3%	99.4%
Technicians	97.8%	98.4%	98.7%
Middle Skill	86.2%	88.3%	89.6%
Sales	90.1%	91.8%	92.7%
Office and admin	93.6%	94.9%	95.6%
Production, craft and repair	82.9%	85.0%	86.4%
Operators, fabricators and laborers	76.1%	79.3%	81.1%
Low Skill	80.2%	83.6%	85.4%
Protective services	93.9%	95.6%	96.3%
Food prep, buildings and grounds, cleaning	74.9%	78.9%	81.0%
Personal care and personal services	82.0%	85.3%	87.0%

	College Graduates		
	2000-2003	*2004-2007*	*2008-2010*
Aggregate	28.2%	29.4%	31.2%
High Skill	60.3%	61.9%	63.9%
Managers	51.3%	54.0%	56.8%
Professionals	73.7%	74.3%	75.5%
Technicians	40.2%	40.0%	41.9%
Middle Skill	12.4%	13.4%	14.4%
Sales	23.8%	25.0%	25.1%
Office and admin	14.5%	15.7%	18.1%
Production, craft and repair	6.7%	7.0%	7.3%
Operators, fabricators and laborers	4.4%	4.7%	5.0%
Low Skill	9.2%	9.6%	10.6%
Protective services	18.6%	19.6%	20.4%
Food prep, buildings and grounds, cleaning	6.1%	6.8%	7.5%
Personal care and personal services	9.6%	10.3%	11.0%

Notes: Author's calculation from data that joins the American Community Survery and the infrastructure files of the Longitudinal Employer Household Dynamics program at the U.S. Census Bureau. The top panel of this table reports the fraction with a high school diploma in each occupation category, averaged over the indicated years. The bottom panel of this table reports the fraction with a college degree in each occupation category, averaged over the indicated years.