

# Labor Market Anxiety and the Downward Trend in the Job Separation Rate\*

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ncedotal evidence suggests that labor market conditions surrounding American workers had been worsening in recent decades, even before the severe recession in 2007-2009.

However, studies by academic researchers have not found clear evidence that worker turnover has increased over time. In this article, Shigeru Fujita shows that there is a long-run downward trend in the separation rate into unemployment and examines several factors that help account for this long-run decline. He argues that the aging of the labor force has played an important role in the trend. He also explains, using an economic model, how the declining separation rate can result from workers' response to the increased sense of job insecurity.

Anecdotal evidence suggests that labor market conditions surrounding American workers had been worsening in recent decades, even before the severe recession in 2007-2009. The following quote from an article in the *New York Times* characterizes the sentiment of American workers: "As workers' job security has evaporated, so has their bargaining power — their ability

to ask for more money, more vacation time, more health benefits. Across the nation, and across industries, employees perceive that they are more vulnerable to dismissal now than in the past" (July 3, 1995).

A notable thing about this quote is that this article was published in 1995, nearly four and half years after the shallow and short recession in 1990-91. The average unemployment rate was 5.6 percent in 1995, and thus, the labor market in 1995 was by no means weak from the viewpoint of the level of the unemployment rate.

Academic researchers have also

\*The views expressed here are those of the author and do not necessarily represent the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.

studied this issue of job security more formally.<sup>1</sup> One intuitive approach they've taken is to examine whether there is any upward trend in worker turnover rates. The idea is that increased job insecurity should be reflected in higher worker separations in the data. Interestingly, however, these studies have not found clear evidence that worker turnover has increased over time, despite the view exemplified in the above quote.

There are a number of ways to measure worker turnover, but one relevant measure for the issue of job security is the separation rate into unemployment. This measure is constructed by calculating the number of people who lost their jobs in a given month as a fraction of the total number of employed workers.

Figure 1 presents the separation rate over the last three decades. There are several interesting patterns. First, the separation rate into unemployment increases during recessions. This is not surprising given that firms shed more workers during recessions.<sup>2</sup> Second, while this "counter-cyclical-ity" is clear in the data, the separation rate has been gradually declining over time. Third, even though the separation rate increased sharply during the Great Recession, its peak was lower than the level we saw during the

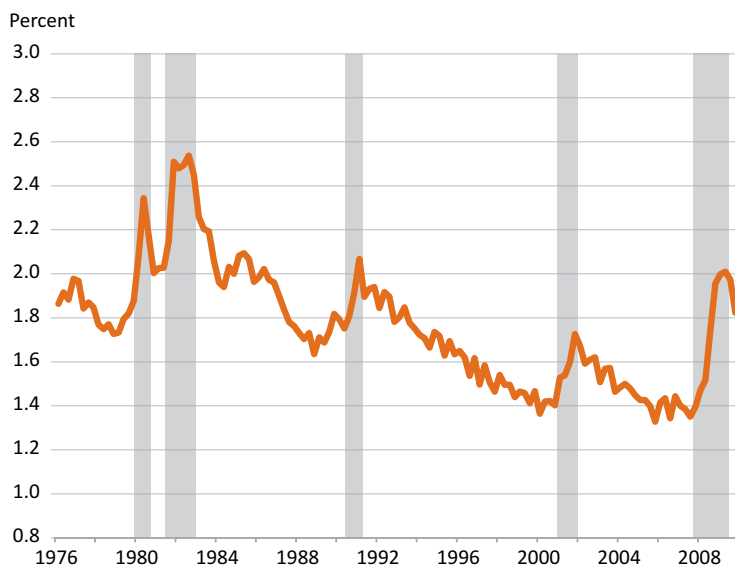


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<sup>1</sup> See, for example, the special issue of the *Journal of Labor Economics* in 1999. The entire issue is devoted to job security.

<sup>2</sup> See my 2007 *Business Review* article for a summary of fluctuations of the job separation rate and job finding rates over the business cycle. The focus of this current article is on the long-term trend of the job separation rate.

**FIGURE 1****Aggregate Separation Rate**

Notes: Author's calculations using CPS basic monthly data. The numbers plotted represent the rate at which employed workers become unemployed per month, expressed as quarterly averages. Grey bars represent NBER recession dates. Last date plotted: 2009/Q4.

recessions in the early 1980s. This is quite surprising given the severity of the Great Recession.

The focus of this article is on the secular decline in the separation rate. Does it imply that labor market conditions concerning job security have improved over time, as opposed to the view often found in the popular press, such as the one quoted at the beginning of this article?

In what follows, I will examine several factors that help account for the long-run decline in the separation rate. The first is the aging of the workforce. I will show empirically that aging has contributed significantly to the declining separation rate. The second explanation is based on a declining trend in business volatility. I present a popular labor market model, called the labor-matching model, to describe how the decline in business volatility lowers the separation rate. These two expla-

nations, however, do not directly speak to the increased sense of job insecurity. The last explanation, which directly addresses this issue, argues that the lower separation rate is actually a result of an increased sense of job insecurity. This somewhat counterintuitive result is explained in an extended version of the labor-matching model.

#### AGING OF THE LABOR FORCE

Let's start with the aging of the labor force. The share of older workers in the workforce has increased in the last three decades. Aging affects the separation rate because older workers tend to have a stronger attachment to their employers. In other words, workers "shop around for jobs" when they are young, until they eventually settle into a job they like. This career pattern implies that a larger share of older workers reduces the separation rate in the aggregate.

The table on page 3 presents the average separation rate by demographic groups together with the employment share of each group. It presents the numbers for each of the three decades starting from the 1980s. First, let's compare separation rates across different demographic groups. Throughout the 30-year period, young workers (that is, workers younger than 25 years old) always have the highest separation rate. This is true for both genders. Second, one can see that the employment share of older workers has increased since the 1980s. Although employment shares of prime-age workers (workers who are between 25 and 54 years old) declined in the 2000s after increasing in the 1990s, the employment share of young workers declined and that of old workers (that is, workers who are older than 54 years) increased consecutively over the three decades. These changes in the employment shares by themselves reduce the aggregate separation rate. However, one important point to recognize here is that even if one focuses on the trend within each demographic group, the separation rate has been on a declining trend over this 30-year period, save for the separation rate of female workers older than 55 between the 1990s and 2000s. The fact that separation rates are declining even within demographic groups implies that the aging of the labor force cannot be the sole reason for the declining separation rate over the last three decades, as displayed in Figure 1.

But how much of the decline in the aggregate separation rate can be explained by the aging of the labor force? To get a sense, we can calculate the so-called "fixed-weight" separation rate. Note that the observed aggregate separation rate can be thought of as a weighted average of the separation rates of the six demographic groups, where employment shares at each moment are used as weights. In the fixed-weight separation rate, the em-

ployment shares are fixed at the levels at one particular time throughout the sample period. Because employment shares are fixed, this measure is not influenced by the changing demographic composition.<sup>3</sup>

Figure 2 plots the fixed-weight separation rate by fixing the employment shares at the level in 1976-78, together with the observed aggregate separation rate that was also plotted in Figure 1. Figure 2 indicates that the separation rate would have stayed higher than the actual level if the employment share did not change over the past three decades. Therefore, the difference between the two series can be thought of as the effect of the changes in demographics. According to this comparison, roughly one-half of the decline in the aggregate separation rate can be attributed to the aging of the labor force. This is arguably a large contribution, but it also implies that there are other causes as well.

### CHANGES IN INDUSTRY STRUCTURE

Another important thing that has changed significantly in the U.S. labor market is that the employment share of the manufacturing sector has shrunk significantly, while service-sector employment has increased its share. This can also explain the declining separation rate if the separation rate in the manufacturing sector tends to be higher than that in the nonmanufacturing sector. Figure 3 presents the separation rates for the two sectors. One can see from the difference between the two series that the separation rate of the manufacturing sector responds more sharply to busi-

<sup>3</sup> Note that this measure is not insensitive to which period is used to fix the employment shares. But we can also calculate a more sophisticated measure, the so-called chain-weighted index, which does not have this problem. Using the chain-weighted separation rate gives the same result.

## TABLE

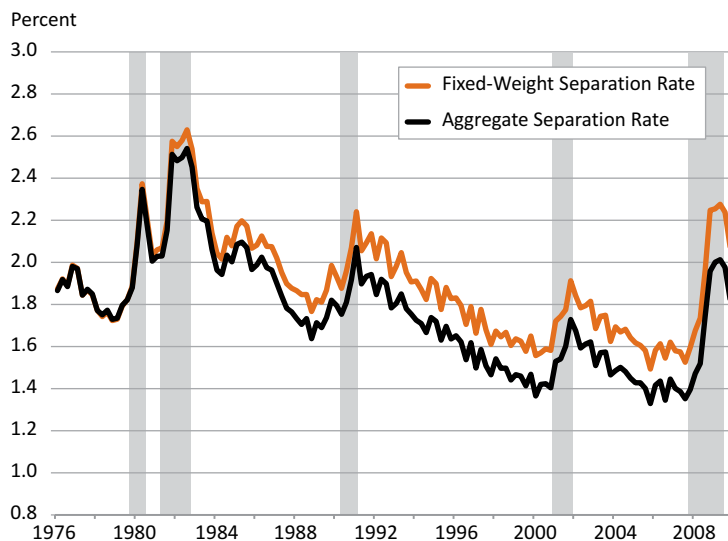
### Separation Rate and Employment Share by Age and Gender

	Male			Female		
	16 - 24	25 - 54	55 -	16 - 24	25 - 54	55 -
1980 - 1989	4.79 (10.11)	1.91 (37.89)	0.99 (8.04)	3.23 (9.17)	1.37 (29.24)	0.82 (5.55)
1990 - 1999	4.18 (8.07)	1.59 (39.15)	0.99 (6.87)	2.99 (7.31)	1.19 (33.19)	0.82 (5.40)
2000 - 2009	3.75 (7.20)	1.54 (37.52)	1.01 (8.68)	2.66 (6.74)	1.13 (32.33)	0.88 (7.53)

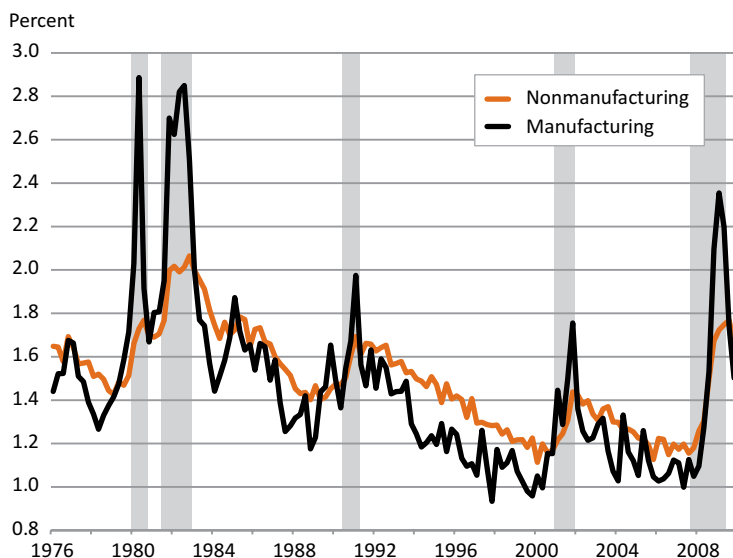
Notes: Both separation rates and employment shares are expressed as percent. The employment share of each demographic group in parenthesis is based on the monthly CPS Table A-1.

## FIGURE 2

### Separation Rates: Effect of Demographic Changes



Notes: Author's calculations using CPS basic monthly data. See notes to Figure 1 for the definition of the separation rate. In constructing the fixed-weight separation rate, employment shares of six demographic groups are fixed at the average levels in 1976-1978. Grey bars represent NBER recession dates. Last date plotted: 2009/Q4.

**FIGURE 3****Separation Rates by Industry**

Notes: Author's calculations using CPS basic monthly data. See notes to Figure 1 for the definition of the separation rate. This figure breaks down the aggregate separation rate into separation rates for manufacturing and nonmanufacturing sectors. Grey bars represent NBER recession dates. Last date plotted: 2009/Q4.

ness cycles. However, the overall levels of the separation rates of the two sectors are quite similar and the separation rates of both sectors have been on a similar downward trend. This implies that the shrinking employment share of the manufacturing sector by itself does not constitute a major reason for the downward trend of the aggregate separation rate.<sup>4</sup>

<sup>4</sup> Yet another possibility is an increase in educational attainment. In particular, college enrollment rates have increased significantly. Unfortunately, it is not possible to conduct the same accounting exercise for this dimension of the data, as pointed out by Robert Shimer (see his paper published in 1998). The reason is that the characteristics of the workforce within the same education group are unlikely to be the same between the early 1980s and 2000s. For example, college degrees may have been valued more in the early 1980s, a time when fewer workers were college graduates. However, this may no longer be true in the 2000s, when a much larger fraction of the population graduates from college, which implies that the average characteristics of the workforce that comes under the category of college graduates have changed over time. This last fact makes it difficult to interpret the long-

### DECLINES IN BUSINESS VOLATILITY

A recent paper by Steven Davis, Jason Faberman, John Haltiwanger, Ron Jarmin, and Javier Miranda provides an alternative story. These authors relate the declining separation rate to the decline in business volatility. Here “business volatility” can be thought of as uncertainty facing firms, and their explanation is based on the idea that the uncertainty has declined over time and thus the separation rate has also declined.<sup>5</sup>

run trend of the separation rate even within the same educational group. Assessing the effects of increasing educational attainment on the separation rate requires an in-depth analysis based on an economic model.

<sup>5</sup> The idea that uncertainty has declined over time may sound odd to some readers given the current economic conditions in the U.S. Their argument, however, is based on a long-run decline in uncertainty, and their paper was written before the Great Recession.

They construct several different measures of business volatility, and one of them is constructed as a dispersion (standard deviation) of employment growth rates across firms. More specifically, they first calculate employment growth between two consecutive years at each establishment and then calculate how dispersed growth rates are across establishments by calculating the standard deviation. This dispersion measure can be computed for each year to obtain a time series of business volatility.<sup>6</sup> They find that the dispersion measure did indeed decline over the period 1977-2005.

Interestingly, the downward trend that both the dispersion measure and the separation rate have been on also holds at the industry level. That is, the authors calculate the dispersion measure and the separation rate for eight different industries and find that the relationship holds in most of these industries.<sup>7</sup>

The economic mechanism relating business volatility and the separation rate can be understood intuitively. When “shocks” facing businesses become smaller, job destruction is less likely to occur, thus reducing the separation rate. The mechanism can be described more formally in an economic model called a labor-matching model, developed by Dale Mortensen and Christopher Pissarides, two of the three Nobel Prize winners in economics in 2010. In the following section, I will use a version of this model again, so let me spend some time explaining the basic structure of the model.

<sup>6</sup> Note that establishment-level employment growth rates are weighted by using the number of employees in the establishment. Their measure also incorporates entry and exit of establishments as well.

<sup>7</sup> These eight industries are mining, construction, nondurable goods manufacturing, durable goods manufacturing, transportation and utilities, retail and wholesale trade, FIRE (finance, insurance, and real estate), and services.

## LABOR-MATCHING MODEL

This model analyzes a situation in which there are many employment relationships between an employer and a worker, called “matches.” Each match’s profitability changes over time, say, due to changing demand. In this model, termination of an employment relationship occurs when the profitability of the match goes below a certain threshold level. An important thing to notice is that this decision to terminate a job takes into account future possibilities. For example, the firm may not let the worker go even if profits temporarily turn negative because finding a new worker is time-consuming and costly. One can show in this model that when uncertainty regarding future demand decreases, the likelihood that job separation will occur declines, a result that translates into a decline in the observed separation rate. The main reason is that the decreased uncertainty makes it less likely that profits will fall below the threshold level.

The explanation by Davis and co-authors is certainly plausible in light of the so-called Great Moderation, a term that refers to the period of low volatility from the early 1980s through the mid-2000s. However, Davis and co-authors’ main focus is on the uncertainty facing firms and does not directly examine the uncertainty facing workers, as indicated by the increased sense of job insecurity alluded to in the introduction.

## WAGES AND JOB SEPARATION IN A JOB-MATCHING MODEL

My recent working paper proposes the explanation that the increased sense of job insecurity is actually a source of the declining separation rate.<sup>8</sup> Before getting into the details, let me first discuss how wages are de-

<sup>8</sup> See my working paper.

termined and how that interacts with the job separation decision in the basic labor-matching model.

As briefly mentioned above, the key idea of the labor-matching model is that it takes time for the worker to find a new job and for the firm to find a new worker. This is called the search friction. An important implication of the search friction is that wages can deviate from workers’ productivity. That is, in a hypothetical economy without the search friction, workers can find a better job opportunity immediately if the current wage is lower than their productivity. Similarly, the firm will never pay wages higher than the worker’s productivity because it can immediately find a similarly productive worker who is willing to work at a wage lower than this, that is, a wage equal to her productivity.

**A slack labor market or a worse alternative opportunity makes workers feel insecure about separating into unemployment, and consequently, they stay with their current employer longer.**

In the presence of the search friction, wages can be lower than the worker’s productivity when the worker has a strong desire to stay with his or her current employer. For example, when it takes a long time for a worker to find the next job, the worker wants to stay with the current employer rather than become unemployed and search for the next job. This implies a lower separation rate. Moreover, it also means that the worker is willing to accept a lower wage. The same thing could happen when the alternative opportunity to his or her current job (for example, the wage that he or she can expect from a future employer) is not good for the worker.

A slack labor market or a worse

alternative opportunity makes workers feel insecure about separating into unemployment, and consequently, they stay with their current employer longer. We will see that when workers face a higher possibility of losing their skills by separating from their current employer, this fear of losing their skills and suffering a wage drop translates into a lower separation rate, which seems consistent with the data we discussed at the beginning of the article.

## SKILL LOSS IN THE LABOR-MATCHING MODEL

The extension of the labor-matching framework to include the possibility of skill loss takes the form of workers losing their skills during the period of job search (that is, while they’re unemployed). Prominent examples in this vein include papers by Lars Ljungqvist

and Thomas Sargent and by Wouter Den Haan, Christian Haefke, and Garey Ramey. Introducing this feature is important in that it allows researchers to replicate a well-known empirical fact: that wages tend to be lower at a worker’s new job after he or she has gone through a period of unemployment (see, for example, the paper by Louis Jacobson, Robert LaLonde, and Daniel Sullivan). Furthermore, the literature has shown that declines in wages are often associated with a loss of skills. In my earlier *Business Review* article with Vilas Rao, we studied the experience of workers who lost their jobs around the 2001 recession, and we found that those workers who switched occupations or industry suffered a



particularly large drop in wages. Our result is consistent with the findings in the existing literature that worker's skills are tied closely to the experience in a certain occupation or industry.<sup>9</sup> Using the model that includes the possibility of skill loss, my working paper analyzes how the fear of losing skills can interact with the job separation decision and wage determination. Specifically, workers accumulate the skill that is specific to their job, but they may lose the skill once they are out of work. The key experiment in my paper is to see the effects of a higher risk of skill loss. What does the higher risk of skill loss represent in the real world? The labor-matching model I used in my experiment does not specify the underlying sources, but these sources can readily be associated with familiar phenomena, such as a rising tide of globalization or rapid technological progress, resulting in more jobs being outsourced to low-wage countries. The question is: How does workers' behavior change when facing a new environment in which workers can lose their skills faster when they are out of work?<sup>10</sup>

### TRADE-OFF BETWEEN JOB SECURITY AND WAGE INCREASE

The result of higher skill loss is that both the job separation rate and wages decline. Recall that an important determinant of job separation and wages in the labor-matching framework is the value of opportunities available to the worker outside the current employment relationship. A lower

<sup>9</sup> In other words, the skills can be useful as long as a worker stays in the same occupation, even if the worker changes jobs. See, for example, the papers by Derek Neal, and by Gueorgui Kambourov and Iouri Manovskii.

<sup>10</sup> An alternative interpretation is that workers face a higher risk that they will not find a job that uses the skills familiar to them.

value of outside opportunities lowers wages and the chance of job separation in the current employment relationship. The higher risk of losing skills means that the value of outside opportunities for currently employed workers is smaller. Because workers face an increased chance of ending up in a job that pays less, they become more willing to accept lower wages (or to give up a pay raise) in exchange for keeping their current job.

Recall that the model with skill loss replicates the aforementioned empirical fact that workers often end up with a job that pays less than their previous job. Workers who accumulated

**Fear of losing their skills makes workers reluctant to separate from their current employer and more willing to forgo wage growth.**

experience in a certain occupation or industry lose skills after a job loss and are hired only as inexperienced workers in a different industry or occupation. However, in a new environment in which the risk of skill loss has increased, experienced workers will have to accept lower wages in their current match, and consequently, there will be a smaller drop in wages should a separation occur.

A recent paper by Henry Farber computes the average earnings losses of job losers using a data set called the Displaced Workers Survey.<sup>11</sup> He pres-

<sup>11</sup> The Displaced Workers Survey is conducted every two years. The purpose of the survey is to study the experience of displaced workers, including earnings before and after the displacement.

ents the average earnings losses since the early 1980s. He calculates the average decline in real weekly earnings in each of the 14 surveys since 1984, including the 2010 survey. The result is that the series does not show an easily discernible downward or upward trend. Thus, the evidence on wage loss is not completely consistent with the model's prediction. However, what is somewhat surprising is not the lack of a downward trend in the size of earnings losses but the lack of an upward trend, which could be due to the mechanism highlighted in the model that there is less room for wages to drop further.

In summary, the explanation I have discussed emphasizes the trade-off between workers' willingness to accept wage cuts (or slow wage growth) and keeping their job: By accepting lower wages, workers can hold on to their jobs. Importantly, it is consistent with the fact that real wages have been stagnant during the period of declining separation rates. One may recall a puzzle in the late 1990s that, even though the labor market appeared to be tight, real wage growth was quite subdued. The following quote from a speech by former Fed Chairman Alan Greenspan offers a clear intuition that corresponds to the implications of the model: "A sense of increasing skill obsolescence has also led to an apparent willingness on the part of employees to forgo wage and benefit increases for increased job security. Thus, despite the incredible tightness of labor markets, increases in compensation per hour have continued to be relatively modest" (October 1, 1998).

### CONCLUSION

This article discussed possible sources of the long-run downward trend in the job separation rate. First, the aging of the workforce is one of the main reasons for the trend: An older labor force implies that the labor force, on average, has a stronger attachment

to employers and thus lowers the separation rate. The second source studied by Davis and co-authors is declining business volatility: Decreased uncertainty makes it less likely that job separation occurs. These two explanations do not directly address the increased

sense of job insecurity among American workers.

The third explanation is based on the trade-off between wages and job security: Fear of losing skills makes workers more willing to accept lower wages in exchange for keeping their current

jobs. This explanation reconciles the coexistence of stagnant wage growth and the lower job separation rate. An important general point of this last explanation is that gauging job insecurity based solely on the level of labor turnover can be a misleading exercise.

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