

## Does Self-Employment Pay? The Role of Timing and Voluntary Mobility

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**Abstract:** In this paper, I re-examine the earnings differential between self-employed and wage-employed men. Previous analysts have consistently concluded that self-employment does not pay, but this result is puzzling because self-employed men work longer hours and bear more income risk than their wage-employed counterparts. Using data from the 1979 National Longitudinal Survey of Youth, I find that the timing and (voluntary or involuntary) nature of men's transitions into self-employment are important determinants of whether they receive wage gains. I find that when a man transitions from wage-employment to self-employment voluntarily and early in his career, his wage is predicted to increase contemporaneously by 31%. The magnitude of this increase is 2.6 times larger than the predicted wage change associated with a voluntary, early career transition to a new wage job. Conversely, I find that when a man transitions from wage-employment to self-employment involuntarily and late in his career, his predicted wage decreases contemporaneously by 18%. The magnitude of this decrease is larger than the predicted 13% wage decrease associated with an involuntary, late career transition to a new wage job.

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## I. Introduction

Analysts consistently conclude that self-employment does not pay. For example, Hamilton (2000) finds that self-employed men have lower entry wages and slower wage growth than their wage-employed peers. Moreover, he finds that men persist in self-employment despite the possibility of earning more in wage-employment. These results are robust even after correcting for the under-reporting of self-employment income (Hamilton, 2000) and selection into self-employment based on unobservables (Kawaguchi, 2002, 2003; Hyytinen, *et al.* 2013).

The lack of wage benefits associated with self-employment is puzzling for at least two reasons. First, the self-employed work longer hours (Hyytinen, *et al.* 2013; Hurst, *et al.*, 2014) and bear more income risk than their wage-employed counterparts (Kawaguchi, 2003). Second, when analysts ask more broadly whether there are wage gains associated with starting a new wage job, they consistently find that job mobility pays.<sup>1</sup> Taken together, these findings raise two questions: (1) why do individuals enter self-employment when it appears not to be financially rewarding; and (2) why do transitions to new wage jobs pay, while transitions to self-employment do not.

The timing and (voluntary or involuntary) nature of men's transitions to self-employment may provide answers to these questions. Over the past 20 years, workers over the age of 55 have been 30% more likely than workers under the age of 34 to transition to self-employment, and workers who became self-employed after a spell of unemployment have accounted for 20% of all self-employed workers (Kauffman Index of Entrepreneurial Activity, 2015). The job mobility literature finds that the wage changes associated with job mobility for these workers—*i.e.*, workers who change jobs with relatively high levels of experience and/or involuntarily—are the least likely to be large and positive. However, in establishing that self-employment does not pay, previous analysts have made no distinction between voluntary and involuntary transitions and, in particular, voluntary, early career transitions and involuntary, late career transitions.<sup>2</sup>

In this study, I ask whether the timing and (voluntary and involuntary) nature of men's transitions into self-employment can explain why self-employment seemingly does not pay. Using data from the 1979 National Longitudinal Survey of Youth (NLSY79), I use within-person variation to estimate the wage changes associated with voluntary and involuntary transitions to

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<sup>1</sup> See Bartel and Borjas (1981), Mincer (1986), Topel and Ward (1992), and Keith and McWilliams (1999).

<sup>2</sup> Hamilton (2000), Kawaguchi (2002; 2003), Tergiman (2011), Levine and Rubinstein (2013), and Åstebro and Chen (2014) all estimate the returns to self-employment without distinguishing between voluntary and involuntary mobility.

new self-employed jobs and new wage jobs at various points in a worker's career. This allows me to explore how the wage changes associated with starting a new self-employed job vary with the timing and nature of the transition and how they compare to wage gains associated with transitions into new wage jobs to further determine whether self-employment pays.

I find that the timing and (voluntary or involuntary) nature of mobility are important determinants of the wage gains associated with self-employment. When a man transitions from wage-employment to self-employment voluntarily and early in his career, I predict that his wage increases contemporaneously by 31%. The magnitude of this increase is 2.6 times larger than the predicted wage change associated with voluntary, early career transitions between wage jobs. Moreover, it is not until tenure on the new job reaches six years that the wage of a man who transitioned voluntarily to a new wage job is predicted to exceed the wage of man who transitioned voluntarily to a new self-employed job. Conversely, I find evidence that involuntary, late-career transitions from wage-employment to self-employment contemporaneously decreases a worker's wage by 18%. The magnitude of this decrease is larger than the predicted decrease in a worker's wage for involuntary, late career transitions between wage jobs, which decreases a worker's wage by 13%. Even after six years of tenure, a late-career, involuntary self-employed worker earns a wage that is 14% less than the terminal wage of his previous job.

In concluding that self-employment does not pay, Hamilton (2000) and others focus on transitions into self-employment among workers with moderate levels of experience who stay self-employed for a significant period. For example, Hamilton predicts that the median wage of men who become self-employed with 10 years of experience and remain self-employed for 10 years is 35% less than the predicted wage of similar wage-employed men. While these estimates are valid and interesting, they ignore a large portion of self-employed men whom I find receive large returns to self-employment: men who transition to self-employment voluntarily, and early in their career. Data from the NLSY79 reveal that over 25% of men become self-employed before they have five years of experience. Therefore, I show that the returns to self-employment are heterogeneous with respect to the timing and nature of men's transitions to self-employment, and a nuanced understanding of the returns to self-employment is required.

## **II. Background**

From a theoretical perspective, it is unclear whether self-employment is expected to pay. Utility-maximizing individuals might forego income in self-employment in exchange for non-pecuniary

benefits. For example, self-employment could allow for more autonomy and more flexible work hours (Hyytinen *et al.*, 2013). However, individuals are predicted to earn more in self-employment than they would in wage-employment if the self-employed are better sorted on their sectoral abilities (Roy 1951; Jovanovic 1982) or if they receive a risk premium for bearing greater financial uncertainty (Kihlstrom & Laffont 1979; Kanubar 1982).

In their attempts to determine which economic factors best explain men's decision to become and remain self-employed, analysts consistently find that self-employed men earn less than their wage-employed counterparts. In his seminal paper, Hamilton (2000) finds that the median self-employed man with ten years of experience has a lower entry wage and slower wage growth than his wage-employed counterpart, implying that after 10 years on the job he would earn 35% less. This result holds even after he controls for the under reporting of self-employment income and appears not to be driven by the selection of less able workers into self-employment. In fact, Hamilton (2000) finds evidence of positive selection into self-employment, and more recent studies find self-employed men have lower wages using within-person variation (Kawaguchi 2003; Hartog *et al.* 2010) and within-twin variation (Hyytinen *et al.*, 2013).

In their interpretation of these results, economists often conclude that self-employed men are motivated by non-pecuniary benefits and/or are overconfident. Hurst and Pugsley (2011) even argue that non-pecuniary benefits are of first order importance because 50% of respondents in the Panel Study of Entrepreneurial Dynamics select non-pecuniary benefits as a primary reason for starting their business while only 34% select a desire to generate income.<sup>3</sup> Other analyses tend to support Hurst and Pugsley (2011): self-employed men are more likely than wage-employed men to describe a job where they greatly control the methods and pace of their work and less likely to describe their job as monotonous (Hyytinen *et al.*, 2013). Kawaguchi (2002) finds that self-employed men value \$1.00 of self-employment income at the same level as \$2.50 of wage employment income. Because men self-employed men are overconfident in the long-term survival of their firm (Cooper *et al.* 1988; Camerer and Lovallo 1999), other analysts argue that overconfidence also plays a large role in explaining the earnings gap between self-employed and wage-employed men. For example, Cooper *et al.* find that 81% of men who recently became self-

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<sup>3</sup> While not all business owners are necessarily self-employed, Light and Munk (2015) find that 84% of business owners classify themselves as self-employed. Therefore, Hurst and Pugsley's (2011) findings likely also apply to self-employed men.

employed believe their odds of success are greater than 70%.

Despite finding that transitions to self-employment are not financially rewarding, analysts consistently find that the wage changes associated with job mobility are positive (Bartel and Borjas 1981; Mincer 1986; Abbot and Beach 1994; Keith and McWilliams 1999). In fact, Topel and Ward (1992) find approximately one third of an individual's wage growth in their first decade of work is due to job mobility. Analysts find that the returns to job mobility are particularly large when an individual's mobility is voluntary (Bartel and Borjas 1981; Mincer 1986; Keith and McWilliams 1999) and/or early in their career (Mincer 1986; Topel and Ward 1992). For example, Mincer (1986) finds that the wage returns to mobility in the first decade of a worker's career are nearly twice as large as the returns after they have 10 years of experience (14.3% compared to 7.8%) and the returns to voluntary mobility are 1.8 times larger than the returns to involuntary mobility (8.6% compared to 4.9%).

While the empirical job mobility literature has found larger returns to voluntary mobility, previous analysts have long shown that the returns to voluntary and involuntary mobility are theoretically distinct and that the returns to voluntary mobility are larger (Becker 1962; Parsons 1972; McLaughlin 1991). In a setting where firms and workers renegotiate wages, McLaughlin (1991) demonstrates that the wage returns associated with voluntary mobility will exceed the wage returns associated with involuntary mobility. In McLaughlin's model, workers and firms renegotiate the worker's wage according to the worker's outside wage offer and the firm's observation of the worker's productivity in each period. If the worker's outside option exceeds the wage the firm is willing to pay based upon his productivity, he leaves voluntarily. However, if the firm observes that the workers productivity has decreased the firm initiates a wage cut, the worker is then laid off if he is unwilling to accept the wage cut because his outside wage offer exceeds this offered wage. Therefore, in McLaughlin's model the returns to voluntary mobility are predicted to be positive and exceed the returns to involuntary mobility because a voluntary mover is accepting an outside wage offer that exceeds his current wage.

Despite the theoretical distinction and empirically differential returns, analysts in the economics of entrepreneurship literature have rarely distinguished between voluntary and involuntary transitions to self-employment. The relatively few analysts who have made this distinction suggest this is an important oversight (Block and Wagner 2010; Berglann *et al.* 2011; Fossen and Büttner 2013). Men who became self-employed after an involuntary transition both

earn less and have shorter self-employment durations than their voluntary counterparts (Block and Wagner, 2010). Additionally, Fossen and Büttner (2013) provide evidence that men who transition to self-employment after an involuntary separation have less control over their human capital and, thus, receive smaller returns to their education. Together with the evidence from the job mobility literature, this evidence suggests the returns to self-employment may be extremely heterogeneous.

### III. Analytical Framework

I begin by describing a familiar log-wage equation used to identify the wage changes associated with job mobility, and then extend the model to capture the wage changes associated with transitions into new self-employed jobs.

Consider the log-wage equation for individual  $i$  on job  $j$  in period  $t$ :

$$\log(w_{ijt}) = \beta_0 + T_{ijt}\beta_1 + X_{it}\beta_2 + Z_{it}\beta_3 + \phi_{ij} + \alpha_i + \varepsilon_{ijt} \quad (1)$$

where  $T_{ijt}$  is job tenure,  $X_{it}$  is labor market experience, and  $Z_{it}$  are other time-varying and time-invariant controls (highest grade completed, marital status, geographic location, and indicators for children). For expositional simplicity, I assume workers' wages evolve linearly with respect to tenure and experience in equation (1), but I include quartic polynomials of tenure and experience to allow for a more flexible specification in estimation. Unobserved time-constant, individual-specific factors and worker-job match quality are captured by  $\alpha_i$  and  $\phi_{ij}$ , while  $\varepsilon_{ijt}$  captures time-varying unobservables.<sup>4</sup>

Equation (1) identifies the predicted difference between a worker's initial wage on his new job and the terminal wage on his previous job (the contemporaneous wage change associated with mobility) as his change in  $\phi_{ij}$  minus the returns to tenure accumulated on his previous job. Therefore, the predicted contemporaneous change in his log-wage is  $(\phi_{ik} - \phi_{ij}) - \bar{T}\beta_1$ , where  $k$  indexes the worker's new job and  $\bar{T}$  is the worker's completed tenure on his previous job. However, if unobserved factors in  $\alpha_i$  and  $\varepsilon_{ijt}$  are correlated with tenure and/or worker-job match quality, the estimated returns associated with job mobility will be confused with effects of  $\alpha_i$  and  $\varepsilon_{ijt}$  that affect  $\log(w_{ijt})$ .

To address the endogeneity issues associated with  $\alpha_i$ , I remove it from the residual by

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<sup>4</sup> Because (1) does not condition on job characteristics,  $\phi_{ij}$  also captures the persistent differences in compensation between jobs. Differences in compensation between jobs could arise because productivity differs between firms, product market conditions, monopsony power, compensating differentials, or firm-specific compensation policies (Woodcock, 2015)

taking first-differences across workers' wage observations. Therefore, I estimate my parameters of interest only using within-person variation. This implies my estimate of the contemporaneous wage gains associated with mobility is free from the endogeneity bias associated with  $\alpha_i$ . In writing this first-differenced version of equation (1), I replace the first-differenced term of  $\phi_{ij}$  with the term  $\gamma_1 m_{ijt}$ , where  $m_{ijt}$  is an indicator that equals one if a worker transitions to a new job in period  $t$ .

$$\Delta \log(w_{ijt}) = \Delta T_{ijt} \beta_1 + \Delta X_{it} \beta_2 + \Delta Z_{it} \beta_3 + \gamma_1 m_{ijt} + \Delta \varepsilon_{ijt} \quad (2)$$

This implies an estimate of  $\gamma_1$ , obtained by estimating equation (2) using ordinary least square (OLS), is equal to the average change of  $\phi_{ij}$  associated with mobility. Therefore, the predicted contemporaneous change in log-wage associated with a transition to a new job is  $\hat{\gamma}_1 - \bar{T} \hat{\beta}_1$ .

While differencing equation (1) addresses the correlation between  $\alpha_i$  and a worker's observed characteristics and  $\phi_{ij}$ , evidence suggests  $\Delta \varepsilon_{ijt}$  might also be correlated with  $\phi_{ij}$  (Topel and Ward 1992; Light and McGarry 1998; Abowd *et al.* 2015). Light and McGarry (1998) find that the number of jobs a worker holds is negatively correlated with wages even after controlling for unobserved, time-invariant individual- and job-specific characteristics. This is consistent with a model where time-varying unobservables drive job mobility decisions. If this correlation exists, then my estimate of a worker's change in worker-job match quality ( $\gamma_1$ ) from equation (2) suffers from a selectivity problem: all else equal, the worker-job match quality of movers and stayers differs in the absence of mobility. My estimate of a worker's change in worker-job match quality is then biased by the difference in the worker-job match quality of movers and stayers in the absence of mobility because in estimating  $\gamma_1$  using equation (2) I implicitly assume this difference equals zero.

Following Mincer (1986) Abbot and Beach (1994), and Keith and McWilliams (1999), I estimate the following equation to address the endogeneity caused by  $\Delta \varepsilon_{ijt}$ :

$$\Delta \log(w_{ijt}) = \Delta T_{ijt} \beta_1 + \Delta X_{it} \beta_2 + \Delta Z_{it} \beta_3 + \gamma_1 m_{ijt} + \gamma_2 f_{ijt} + \Delta \varepsilon_{ijt} \quad (3)$$

where  $f_{ijt}$  equals one if a worker transitions to a new job in period  $t+1$ . An OLS estimate of  $\gamma_2$  then identifies the average difference in worker-job match quality of movers and stayers in the period prior to the movers' job change (*i.e.*, in the absence of job mobility). By differencing  $\hat{\gamma}_1$  and  $\hat{\gamma}_2$  I identify the average change in job match quality of movers net of selection on time-varying unobservables that induce mobility.

I extend equation (3) to estimate the wage gains associated with transitions into new self-employed jobs by including mobility indicators for transitions from or to new wage jobs and from or to new self-employed jobs. Therefore, I estimate the wage gains for four types of transitions: moving from a wage job to a new wage job or a new self-employed job and moving from a self-employed job to a new wage job or a new self-employed job.<sup>5</sup> Additionally, because previous analysts consistently find the tenure and experience profiles of self-employed and wage-employed men differ (Lazear and Moore 1984; Kawaguchi 2003), I estimate separate tenure and experience profiles for the self-employed. Therefore, using OLS I estimate

$$\begin{aligned} \Delta \log(w_{ijt}) = & \Delta T_{ijt} \beta_1 + \Delta X_{it} \beta_2 + \Delta(E_{ijt} T_{ijt}) \beta_1^E + \Delta(E_{itj} X_{it}) \beta_2^E + \Delta Z_{it} \beta_3 + \Gamma_1 M_{itj} \\ & + \Gamma_2 F_{itj} + \Delta \varepsilon_{itj} \end{aligned} \quad (4)$$

where  $E_{ijt}$  is an indicator that equals one if a worker is self-employed in period  $t$  and  $M_{itj}$  and  $F_{itj}$  are vectors that contain a full set of mobility indicators for transitions from wage employment ( $W$ ) and from or to self-employment ( $E$ ).

To extend this model to estimate the gains to voluntary and involuntary mobility, I substitute a set of mobility indicators that denote whether the transition was voluntary or involuntary into equation (4) for  $M_{itj}$  and  $F_{itj}$ . While I considered allowing the returns to tenure and experience to vary depending on whether or not a worker entered into a job voluntarily, this more flexible specification proved to be unnecessary. Therefore, I estimate equation (4) using OLS and compute robust standard errors that allow for the non-independence of observations in person-specific clusters.

## IV. Data

### A. Sample Selection

I use data from the 1979 National Longitudinal Survey of Youth (NLSY79). In 1979, the survey interviewed 6,403 men and 6,283 women between the ages of 14-22. The respondents were interviewed annually from 1979 to 1994 and biennially until 2012.

I impose two selection criteria for a respondent to be in my sample. First, I confine my sample to the 2,236 white, male respondents in the NLSY79 cross-sectional sub-sample to make

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<sup>5</sup> In my analysis, I focus on transitions from wage jobs to new wage jobs or new self-employed jobs because the economics of entrepreneurship literature is primarily interested in understanding whether the wages of men increase when they transition to self-employment from wage-employment. Due to the small number of transitions *from* self-employment, wage gains for those transitions are imprecisely estimated.

my results comparable to the previous literature (*e.g.*, Levine and Rubinstein, 2013). The cross-sectional sub-sample is a representative sample of the non-institutionalized, civilian segment of the U.S. population born between 1957 and 1964. Excluding women and minorities simplifies my analysis by minimizing issues related to labor market participation (women) and differential earnings trajectories (minorities). Second, I require that a respondent must hold at least one job from the beginning of his career start date (the start of the first spell of school non-enrollment lasting at least a year) to his most recent interview date.<sup>6</sup> This trims my sample to 2,148 men.

From these 2,148 men, I form a sample of jobs held from the worker's career start date to their most recent interview. To begin, I eliminate any job where the respondent did not report his earnings. Additionally, I eliminate any job where the respondent's average hourly wage was greater than \$100 per hour or less than \$1 per hour.<sup>7</sup> I further narrow my sample by eliminating jobs if (1) at least half of its duration occurs before the respondent's career start date, (2) the respondent averaged less than 20 hours per week, and (3) the job's class of worker (private sector, government, self-employment, *etc.*) is unidentified.<sup>8</sup>

After applying these criteria, I have a sample of 14,080 jobs. I classify a job as self-employed or wage employed based on responses to the class of worker questions. Because workers report a job's class of worker at each interview, I define a job as self-employed if the respondent reports their job as self-employed at least as often as any other class of worker. Using this classification, I classify 1,042 of the 14,080 jobs held by men as self-employed. I then construct a sample of wage observations from these jobs by using the reported wage for each interview that the job is observed. For a total of 44,145 wage observations. I then difference across wage observations to estimate the model described in section III. After differencing, my sample consists of 38,807 wage growth observations.<sup>9</sup>

To classify a transition to a job as voluntary or involuntary, I use the men's response to the question "What is the main reason you left your employer?" for the men's most recent job held

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<sup>6</sup> Light (1998) and Light and McGee (2015) discuss the justification for this career start date and compare it to alternative definitions.

<sup>7</sup> My findings are robust to multiple cutoffs.

<sup>8</sup>The NLSY79 only collected a job's class of worker if a respondent held the job for at least nine weeks and his average number of hours worked were greater than a given threshold (20 hours from 1979 to 1984 and 10 hours thereafter).

<sup>9</sup> I drop the top and bottom percentile of wage-growth observations to mitigate measurement error. My results are robust to multiple selection criteria.

prior to moving. The NLSY79 staff classified the verbatim responses of this question into one of twenty-five possible reasons. Following previous analysts (*e.g.*, Keith and McWilliams, 1999), I classify a transition as involuntary if the respondent left his previous job because he was fired, laid off, or had his job eliminated and classify a transition as voluntary if the respondent quit his job. If it is unclear whether the transition was voluntary or involuntary (*i.e.*, other or government program ended), I classify the transition in the other category.<sup>10</sup> In section V, I explore if the returns associated with mobility are heterogeneous within the voluntary and involuntary categories—*e.g.*, are the returns associated with quitting to take another job higher than the returns to overall voluntary mobility.

## **B. Dependent and Independent Variables**

To construct the workers' first differenced log-wages, I make use of the computed hourly rate of pay variables constructed by the NLSY79 staff. The NLSY79 staff computed each respondent's hourly rate of pay for each job for which wage information was collected using the respondent's usual wage, time unit of pay, and hours worked per time unit of pay.<sup>11</sup> I then express the respondent's wages in 2000 dollars by deflating the wage observations by the CPI-U.

My controls include indicators for a worker's highest grade completed: less than twelve years of schooling, exactly twelve years of schooling, between twelve and sixteen years of schooling, and greater than sixteen years of schooling. I also include indicators for the presence of children, whether a respondent's health limits the kind of work he can do, marital status, and the geographic region. In addition to these controls, I include quartic polynomials of a worker's cumulative labor market experience and job tenure and dummy variables for the calendar year.

## **C. Descriptive Statistics**

In this sub-section, I discuss the descriptive statistics presented in Tables 1 and 2. Panel A of Table 1 presents the sample means and standard deviations for the variables I use in my estimation of equation (4) prior to taking first differences. Looking at Panel A, a number of interesting patterns emerge. First, the mean log-wage of self-employed workers, 2.59, is similar to the mean-log wage of wage-employed workers, 2.57. This comparison may seem to contradict the finding that self-employment does not pay, but in light of the fact that self-employed workers are on average more

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<sup>10</sup> In my analysis, I focus on voluntary and involuntary categories, but include all other transitions in the regressions as a separate category.

<sup>11</sup> For more information see:

<https://www.nlsinfo.org/content/cohorts/nlsy79/topical-guide/employment/wages>

tenured and experienced than wage-employed workers this finding is unsurprising. The voluntary and involuntary categories provide a more interesting comparison of jobs' mean log-wages. For both self-employed and wage jobs, the mean log-wages of jobs transitioned to voluntarily are about 17% larger than the mean log-wages of jobs that were transitioned to involuntarily. Second, consistent with the economics of entrepreneurship literature, I find that the variance of self-employed workers' wages exceeds the variance of wage-employed workers' wages (Lazear and Moore 1984; Evans and Leighton 1989; Hamilton 2000; Kawaguchi 2003; Tergiman 2011). Third, according to the last row of Panel A, 31% (667/2,148) of the men in my sample hold a self-employed job at some point in their career. Therefore, answering the question "does self-employment pay?" is relevant to a substantial fraction of the labor force.

I summarize the distributions of completed job tenure and cumulative experience at the start of the job in Panel B of Table 1. Panel B shows that men who transition voluntarily to a new job stay on that job longer than men who transition involuntarily. In the case of self-employed workers, men who transition voluntarily have an average completed tenure of 5.09 years, while men who transition involuntarily complete on average 3.79 years—for a difference of approximately 1 year and 3 months. For wageworkers, men who transition voluntarily stay on the new job for an average of 3.37 years and men who transition involuntarily stay on average 2.46 years. Thus, the difference between the average completed tenure of wageworkers is slightly less at 11 months. In addition, Panel B shows that most jobs are short. The median completed tenure is 2.21 years for all self-employed jobs and 1.09 years for all wage jobs. Moreover, 75% of all self-employed (wage) jobs last for less than 6.28 (3.06) years. Panel B also shows that a large fraction of job transitions are made early in a workers career: 25% of all self-employed (wage) jobs are made before men had 4.44 (2.07) years of experience.

Table 2 presents the fraction of separations from wage jobs that are voluntary and involuntary. According to the data, roughly the same fraction of transitions to new self-employed and new wage jobs are voluntary and involuntary. For example, 43% of transitions to new wage jobs are voluntary and 39% of transitions to new self-employed jobs are voluntary. However, when I disaggregate the transitions by worker's experience levels an interesting fact emerges. Men with at least 10 years of experience are 10 percentage points less likely to voluntarily transition to a new self-employed job than a new wage job. Interestingly, I do not observe that involuntary transitions to self-employment are less likely later in a man's career. Consistent with the job

mobility literature (Topel and Ward 1992; Light and McGarry 1998), I also find that as workers gain experience they are less likely to transition to a new job. According to Table 3, 66% (61%) of workers' transitions to new wage (self-employed) jobs occur in the first decade of their career.<sup>12</sup>

## **V. Results**

The analytical framework outlined in section III allows me to estimate the wage gains associated with transitions from both wage jobs and self-employed jobs, I focus my discussion on findings related to transitions from wage jobs to new wage jobs or new self-employed jobs. I do this for two reasons. First, and most importantly, the economics of entrepreneurship literature is primarily interested in understanding whether the wages of men increase when they transition to self-employment from wage-employment. Second, due to the small number of transitions from self-employment my estimates of the wage gains associated with transitions from self-employment are imprecisely estimated.<sup>13</sup>

In V.A, I present results for the estimation of equation (4) by predicting the wage changes associated with transitioning to a new wage and self-employed jobs at various points in a worker's career. In V.B, I examine the returns to voluntary and involuntary mobility. I also examine whether the wage changes associated with mobility are heterogeneous within the voluntary and involuntary categories.

### **A. Estimates of the Returns to Mobility Using Unrestricted Experience and Tenure Profiles**

In this section, I present findings based on estimation of equation (4). The parameter estimates for this specification are in Appendix Table A1. Because the experience profiles of self-employment and wage-employment differ, it is necessary to examine the relative returns to starting a new self-employed or wage job at various levels of experience. Therefore, in Table 3, I present the predicted wage changes associated with transitions from a wage job to new wage or self-employed job at two levels of tenure and experience. In Panel A of Table 3, I report predicted wage changes associated with transitions to a new wage or self-employed job when a worker has five years of experience and leaves a job with three years of tenure. In Panel B, I report predicted wage changes associated with transitions to a new wage or self-employed job when a worker has twenty years of experience and leaves a job with ten of tenure.<sup>14</sup>

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<sup>12</sup> See number of separations: (7,421/11,157) and (430/710).

<sup>13</sup> Estimates are available from the author upon request.

<sup>14</sup> To guide my selection of the tenure levels used in my analysis, I use the Bureau of Labor Statistics Employee Tenure Summary (2014). It is important to note that changing my selected tenure levels would

According to Panel A of Table 3, the predicted contemporaneous wage changes associated with early career transitions to a new self-employed job are large and statistically significant. I predict that when a man has five years of experience and leaves a wage job in which he has three years of tenure his wage contemporaneously increases by 23.1%. However, according to Panel B, the predicted wage of a worker who transitions late in his career to self-employment actually *decreases*. For example, the wage of a worker who transitions to a new self-employed job with twenty years of experience from a wage job with ten years of tenure is predicted to decrease by 16.8%. The results from these tables are clear: contemporaneous wage returns associated with a transition to self-employment are large and positive early in a man's career and large and negative late in a man's career.

To paint a clearer picture of the relative returns to self-employment, in Table 3 I compare the predicted gains associated with transitions to self-employed jobs to the corresponding gains associated with transitions to new wage jobs. I find that the contemporaneous returns to wage-employment follow a similar pattern to self-employment with regard to timing: early career transitions are associated with positive, contemporaneous wage returns and late career mobility with negative, contemporaneous wage returns. For example, a worker who transitions to a new self-employed job with five years of experience and three years of tenure can expect a 23.1% contemporaneous wage increase, while a worker with twenty years of experience and ten years of tenure can expect 16.8% contemporaneous wage decrease. However, the difference between the contemporaneous wage changes associated with early career and late career mobility is smaller for wage jobs. A worker with five years of experience and three years of tenure (Panel A) can expect a 5.4% contemporaneous increase in his wage when he transitions to a new wage job and a 5.3% decrease in his wage when transitions with twenty years of experience and ten years of tenure (Panel B).

Therefore, the predicted contemporaneous wage change associated with an early career transition (Panel A) to a new job is four times larger for self-employment than wage-employment (e.g., 23.1% vs. 5.4% for workers with five years of experience and three years of tenure). Conversely, the predicted contemporaneous wage change associated with a late career transition

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not qualitatively change my results. In addition to the predictions in Table 3, I present the predicted wage gains associated with transitions to a new job for workers with ten and fifteen years of experience to demonstrate that I obtain similar qualitative results using different experience levels. These predictions can be found in Appendix Table A2.

(Panel B) to a new job is three times more negative for a transition to a new self-employed job than a new wage job. Figure 1, which presents the difference in the predicted log entry wages of new self-employed and new wage jobs, displays this result graphically. As Figure 1 shows, until a worker has approximately 10 years of experience the contemporaneous wage change associated with a transition to a new self-employed job is larger than the contemporaneous wage change associated with a transition to a new wage job, and this difference is statistically significant at the 5% level. However, as a worker accumulates experience the predicted entry wage of wage jobs exceed the predicted entry wage of self-employed jobs.

Two factors drive this result. First, when a worker starts a new job the predicted wage change associated with the change in worker-job match quality is substantially larger for a transition to a new self-employed job than a new wage job. Holding everything else constant, the predicted change in worker-job match quality for a new self-employed (wage) job increases a worker's predicted wage by 29.4% (12.7%). Second, the returns to labor market experience are smaller for self-employment than wage-employment. Ten years of experience increases a wage-employed workers predicted wage by 63% and the predicted wage of self-employed worker by 55%.

However, because the wages of workers change over the life of each job, it is important to look beyond contemporaneous wage changes and compare the relative returns of new self-employed and wage jobs at various tenure levels. In addition to displaying the predicted contemporaneous wage changes associated with mobility (*i.e.*, when tenure equals zero), Tables 3 also shows how the predicted wages of new self-employed and wage jobs evolve as workers accumulate on job tenure. For example, the second column of Table 3 displays the predicted difference between the wage of a worker's new job with two years of tenure and the terminal wage on his previous job. Like previous analysts (Lazear and Moore 1984; Kawaguchi 2003), I find on the job wage growth is slower in self-employment than in wage-employment. I find that the predicted wage of a worker who transitions to a new wage job with five years of experience from a wage job with three years is 64.5% larger than the terminal wage on his previous job after 10 years of tenure. However, for an identical move a self-employed worker can only expect a 46.4% increase after 10 years of tenure. Therefore, while the wages of workers who transition early in their career to self-employment are predicted to increase, eventually the wages of workers who made similar transitions to new wage jobs will exceed their wages.

## **B. Estimates of the Returns to Voluntary and Involuntary Mobility**

While the previous discussion made no distinction between the nature of a worker's mobility, I now discuss how the (voluntary or involuntary) nature of a worker's mobility affects the predicted wage gains associated his mobility. This is likely an important empirical distinction in determining whether self-employment pays because, from a theoretical standpoint, a worker will only voluntarily leave his current job if he places a greater value on his outside option.

Unsurprisingly, I find that the predicted wage gains associated with voluntary mobility exceed the predicted wage changes associated with involuntary mobility for transitions into both self-employment and wage-employment. All else constant, when a worker moves voluntarily to a new self-employed (wage) job the predicted change in his wage due to the change in his worker-job match quality is 40.7% (20.2%), while for an involuntary transition the predicted change is 28.2% (3.8%). This implies that the predicted intercept of a worker's log-wage tenure profile (holding experience levels constant) increases 1.4 times more for a voluntary transition to a new self-employed job than an involuntary transition. Therefore, the predicted contemporaneous wage changes estimated in Tables 3 will always be larger for voluntary mobility. For example, the contemporaneous wage change of a worker who transitions with five years of experience and three years of tenure on their prior job (Panel A) is predicted to be 11 (14) percentage points larger if he transitions voluntarily to a new self-employed (wage) job than if he had transitioned involuntarily.

I also examine whether the wage changes associated with mobility are heterogeneous within the voluntary and involuntary categories. Table 4 displays the percent of voluntary and involuntary transitions that can be attributed to one of the twenty-five possible reasons for a job separation. Looking at the voluntary separations, about 90% of voluntary separations result from workers quitting to look for another job or quitting to take a new job. When I examine involuntary separations, I find that approximately 50% of involuntary transitions are the result of workers being laid off, and about 84% of involuntary separations are due to layoffs, work place closures, and temporary or seasonal jobs ending. The vast majority of the remaining involuntary transitions are due to discharges—about 15% of involuntary transitions to both new wage and self-employed jobs. Overall, the percentage of voluntary and involuntary separations that can be attributed to specific reasons for leaving is remarkably similar for transitions to wage and self-employed jobs.

Table 5 presents my predictions of the percent change in workers' wages associated with job mobility due to changes in worker-job match quality. In other words, my prediction of the

change in  $\phi_{ij}$ . This table allows me to explore whether the gains associated with mobility are heterogeneous within the voluntary and involuntary categories. Focusing on voluntary transitions, I find that workers who quit to take another job are predicted to receive the largest wage gains to mobility. In fact, holding all else constant, the wage of a worker who quit to take another self-employed job is predicted to increase by 56% due to changes in worker-job match quality. This finding is perhaps unsurprising because workers who quit to take another job likely have a better outside option than workers who quit to look for a new job.

Within the involuntary separation category, a number of interesting results emerge. First and most strikingly, the predicted wage change associated with a transition after the end of temporary employment is substantially larger than wage change associated with aggregate involuntary mobility. For example, an involuntary transition to a new wage job shifts the wage-tenure profile up by 3.8%, while the similar number for a transition after the end of a temporary or seasonal job is 8.4%. This perhaps reflects that workers holding jobs with a defined end date are more likely to search for a new job prior to its completion and, thus, more likely to find better job matches. Consistent with this interpretation, Keith and McWilliams (1999) find that if a man searches for a job prior to moving, then his returns to mobility are three times larger than if he had not searched prior to moving. Second, I also find that the predicted wage change associated with a transition to a new self-employed after a layoff, a workplace closure, or being fired are all lower (although, not substantially) than the overall aggregate returns associated with an involuntary transition to a new self-employed job. Finally, the predicted wage change associated with a transition to a new wage job after a layoff is substantially smaller than the contemporaneous wage change associated an involuntary transition.

Taken together, these findings show that even within the voluntary and involuntary categories there exists substantial heterogeneity in the returns to mobility. Additionally, these results show that the returns to self-employment are largest when a worker intentionally quits their job to take a new self-employed job. Therefore, if analysts in the economics of entrepreneurship literature are primarily interested in this type of transition, then they substantially underestimate the returns to self-employment. For example, I predict that a worker's wage increases contemporaneously by 23.1% if he transitions from a wage job with three years of experience when he has five years of experience (Table 3), but the predicted contemporaneous wage change for a similar transition when a worker quits to take a new self-employed job is 43.1%. Twelve

percentage points larger than the predicted contemporaneous wage gain associated with aggregate voluntary mobility to a new self-employed job from Table 3.

## **VI. Discussion and Concluding Comments**

I find that the timing and nature of mobility greatly determine the contemporaneous wage changes associated with a transition to self-employment. Specifically, I find that voluntary, early career transitions to new self-employed jobs are predicted to substantially increase a worker's wage. For example, when a man transitions to a new self-employed job with five years of experience from a wage job where he has three years of tenure, his wage is predicted to increase contemporaneously by 31%. The magnitude of this prediction is 2.6 times larger than the analogous prediction associated with an otherwise-identical transition to a new wage job. At the same time, I find that involuntary, late career transitions to new self-employed jobs are predicted to *decrease* a worker's wage. For example, when a man transitions involuntarily from a wage job with 10 years of tenure and 20 years of experience his wage is predicted to decrease by 18%. Moreover, this predicted decrease is larger than the predicted contemporaneous wage change associated with an identical transition to a new wage job.

Therefore, a nuanced perspective is required when answering the question: does self-employment pay? I predict that a voluntary, early career transition to self-employment substantially increases a worker's wage contemporaneously, and this wage increase is substantially larger (by a factor of two) than the contemporaneous returns associated with voluntary, early career transitions to a new wage job. Yet, as a worker accumulates tenure on their new job, the wages associated with a voluntary, early career transition to a wage job grow faster and eventually overtake the wages associated with a voluntary, early career transition to a self-employed job. After five years of tenure on their new job, the wages of early career, voluntary movers to new wage jobs are approximately equal to the wages of early, career voluntary movers to new self-employed jobs: 45.8% and 45.5% larger than their previous wage, respectively.

On the other hand, my answer to the question—does late career self-employment pay?—is a resounding no. A worker who transitions involuntarily, late in their career to a self-employed job can expect an 18% decrease in their wage, which is larger than the expected decrease for a similar transition to a new wage job. Moreover, as workers accumulate tenure on their new jobs, this predicted gap widens. After six years of tenure on their new job, the wage-employed man's wage is predicted to be 4% larger than the terminal wage on his previous job (significant at the ten

percent level), while the self-employed worker's wage is predicted to be 14% smaller than the terminal wage on his previous job.

In establishing the finding that self-employment does not pay, Hamilton (2000) and others focused on transitions where workers have moderate levels of experience and stay self-employed for a significant period of time. For example, Hamilton (2000) estimates that the median man who transitions to self-employment with ten years of experience and stays self-employed for ten years makes less than a similar wage-employed man. On one hand, Hamilton's comparison makes sense: the average man transitions to self-employment with about ten years of experience, and it is natural to estimate the returns to long-term self-employment (and my results based on this assumption corroborate Hamilton's finding). On the other hand, this estimation ignores a large fraction of self-employed workers for whom I predict self-employment *does* pay. According to Table 2, over 25% of men's voluntary transitions to self-employment occur before they have five years of experience, implying a large fraction of men become self-employed early in their career. Moreover, while Hamilton is interested in estimating the median returns to self-employment, the median self-employed job only lasts about two years and over 75% of self-employed jobs last for less than seven years.

In addition, my results show if analysts are primarily interested in voluntary transitions to self-employment, then they are under-estimating the returns to self-employment. This seems likely because analysts in the economics of entrepreneurship literature estimate the returns to self-employment in order to better understand the returns to entrepreneurship—in fact, many analysts use the terms interchangeably.<sup>15</sup> If entrepreneurship entails risk, growth, and innovation, then it is more likely entrepreneurial transitions occur after a voluntary separation. Yet, due to data restrictions, Hamilton and others include men who transition involuntarily to self-employment in their analysis.

Therefore, I believe that my analysis—as well as other research demonstrating that the self-employed are a heterogeneous group—highlights the importance of taking a more nuanced approach when estimating the returns to self-employment. Rather than asking “does self-employment pay,” future research should perhaps ask “for whom or when does self-employment pay?” While my analysis does not predict that self-employment pays universally, it does indicate that self-employment pays for men who transition voluntarily and early in their careers.

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<sup>15</sup> See Light and Munk (2015) for a through discussion.

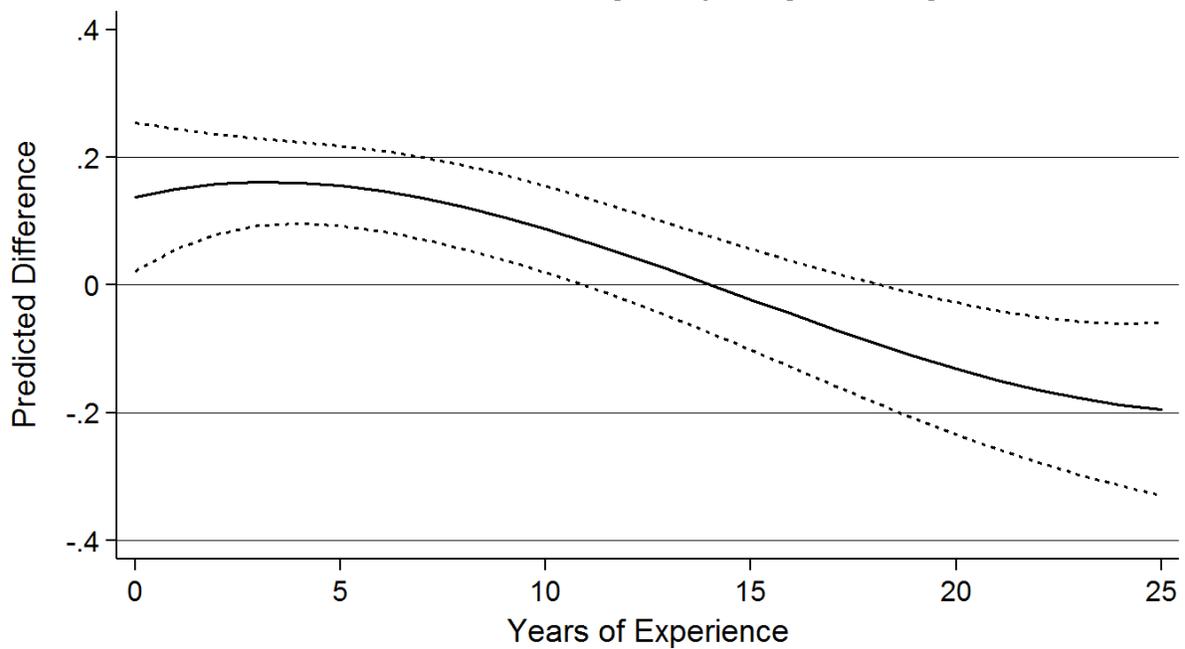
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Figure 1: The Predicted Log Entry Wage of Self-Employed Jobs Minus the Predicted Log Entry Wage of Wage Jobs



Note: With the 95% confidence interval.

Table 1: Summary Statistics by the Nature of Worker's Separation from their Previous Job

Panel A: Sample Means and Standard Deviations						
Variable	Wage-Employment			Self-Employment		
	All	Vol.	Invol.	All	Vol.	Invol.
Dependent variable						
Log-Wage <sup>a</sup>	2.57 (.55)	2.65 (.55)	2.49 (.54)	2.59 (.75)	2.66 (.71)	2.50 (.77)
Independent variables						
Tenure (years)	4.12 (5.40)	4.12 (5.20)	3.77 (5.17)	5.54 (6.16)	5.45 (5.86)	4.73 (5.61)
Cumulative experience (years)	10.07 (7.94)	10.80 (7.67)	9.63 (7.96)	12.98 (8.16)	12.34 (7.47)	13.13 (8.57)
Highest grade completed	13.06 (2.37)	13.43 (2.41)	12.77 (2.34)	12.98 (1.32)	13.05 (2.46)	12.87 (2.07)
1 if health limits ability to work	.03	.03	.03	.05	.05	.05
1 if children under 6	.20	.21	.19	.21	.22	.21
1 if children under 18	.33	.34	.33	.35	.35	.35
1 if never married	.30	.25	.31	.19	.18	.20
1 if cohabiting	.07	.06	.07	.07	.08	.08
1 if married	.52	.56	.48	.60	.60	.60
1 if separated	.12	.12	.13	.13	.15	.12
1 if north east	.19	.19	.17	.18	.18	.16
1 if north central	.34	.33	.35	.35	.32	.40
1 if south	.30	.31	.27	.30	.34	.26
1 if west	.18	.17	.19	.17	.15	.17
Number of wage observations	40,571	16,244	11,524	3,574	1,273	940
Number of individuals	2,148	1,718	1,587	667	298	252
Panel B: Sample Distributions						
Variable	Wage-Employment			Self-Employment		
	All	Vol.	Invol.	All	Vol.	Invol.
Completed tenure (years)						
Mean	3.04	3.37	2.46	5.01	5.09	3.79
Standard deviation	5.04	5.14	4.30	6.59	6.43	5.08
25 <sup>th</sup> percentile	.42	.51	.36	.90	.99	.76
50 <sup>th</sup> percentile	1.09	1.31	.86	2.21	2.15	1.84
75 <sup>th</sup> percentile	3.06	3.61	2.38	6.28	6.50	4.45
Cum. experience at start of job (years)						
Mean	9.06	10.34	10.64	11.54	10.34	13.47
Standard deviation	8.22	7.57	8.58	8.58	7.10	9.26
25 <sup>th</sup> percentile	2.17	4.75	3.57	4.44	5.07	5.29
50 <sup>th</sup> percentile	6.84	8.30	8.26	9.92	8.63	10.90
75 <sup>th</sup> percentile	13.94	14.48	15.92	17.94	13.61	21.96
Number of Jobs	13,038	4,330	3,162	1,042	320	280

Note: The number of voluntary and involuntary observations do not sum to the total number of observations because (1) the other and missing categories are excluded from the table and (2) first jobs definitionally cannot be assigned a category.

<sup>a</sup>CPI-U deflated 2000 dollars

Table 2: Percent of Transitions from Wage Jobs that are Voluntary or Involuntary by Amount of Experience

Nature of separation	Respondent moves from a wage job to a new		
	Wage Job (1)	SE Job (2)	t-statistic (1)-(2)
Voluntary			
All separations	42.9	39.5	1.67
Less than 10 yrs. experience	44.5	46.1	-.59
More than 10 yrs. experience	39.8	28.6	3.39
Involuntary			
All separations	31.7	30.2	-.77
Less than 10 yrs. experience	32.2	29.7	-.59
More than 10 yrs. experience	30.9	31.2	-.08
Number of separations			
All separations	11,157	710	
Less than 10 yrs. experience	7,421	430	
More than 10 yrs. experience	3,736	280	

Note: The text defines voluntary and involuntary separations. Other separations and separations that cannot be classified due to missing data and are excluded from the table. Column 3 contains the test statistic for the difference of columns 1 and 2.

Table 3: The Predicted Percent Change in Wages Associated with Job Transitions

Panel A: Transition Occurs at 5 Years of Experience from a Job with 3 Years of Tenure						
Transitions from a wage job to a new	Years of Tenure Accumulated on the New Job					
	0	2	4	6	8	10
Wage job						
For any reason	5.4 (7.88)	19.9 (17.57)	33.1 (16.37)	44.9 (15.07)	55.4 (14.00)	64.5 (13.14)
Voluntarily	11.9 (12.78)	27.4 (21.36)	41.3 (19.54)	53.5 (17.57)	64.0 (15.97)	73.1 (14.73)
Involuntarily	-3.3 (3.25)	10.0 (7.25)	22.0 (10.34)	32.5 (10.93)	41.6 (10.91)	49.4 (10.47)
Self-Employed job						
For any reason	23.1 (6.61)	32.9 (8.02)	39.6 (7.57)	43.7 (6.93)	45.7 (6.24)	46.4 (5.52)
Voluntarily	31.2 (6.48)	41.1 (7.56)	47.8 (7.40)	51.7 (6.95)	53.3 (6.38)	53.4 (5.72)
Involuntarily	19.5 (3.85)	28.6 (4.95)	34.7 (5.14)	38.2 (5.01)	39.7 (4.71)	39.8 (4.29)
Panel B: Transition Occurs at 20 Years of Experience from a Job with 10 Years of Tenure						
Transitions from a wage job to a new	Years of Tenure Accumulated on the New Job					
	0	2	4	6	8	10
Wage job						
For any reason	-5.3 (4.24)	1.8 (1.20)	8.6 (4.48)	15.4 (5.98)	22.1 (6.50)	25.3 (6.49)
Voluntarily	.01 (.30)	7.6 (4.82)	14.4 (7.05)	21.0 (7.72)	26.8 (7.61)	32.1 (7.11)
Involuntarily	-13.3 (9.44)	-7.1 (4.42)	-1.2 (.57)	4.4 (1.70)	9.5 (2.85)	14.0 (3.30)
Self-Employed job						
For any reason	-16.8 (3.49)	-16.4 (3.43)	-15.0 (2.86)	-12.1 (1.96)	-7.7 (.94)	-1.3 (.11)
Voluntarily	-10.3 (1.79)	-9.8 (1.69)	-8.4 (1.35)	-6.1 (.84)	-2.5 (.27)	2.6 (.21)
Involuntarily	-18.2 (3.14)	-17.8 (3.39)	-16.6 (2.65)	-14.4 (2.02)	-11.1 (1.25)	-6.5 (.54)

Note: All estimates are calculated using Equation (4) from section III and include the controls indicated in table 1. Absolute values of each prediction's z-statistic are in parenthesis. I convert the change in log-wage to a percent change using the conversion equation  $(\exp(x)-1)$ .

Table 4: The Percentage of Workers' Voluntary and Involuntary Separations Attributed to Specific Reasons For Leaving Their Previous Employer

Reason for separation	Respondent moves from a wage job to a new	
	Wage Job	SE Job
Voluntary separations		
Quit to look for another job	54.71	55.97
Quit to take another job	36.46	34.16
Quit for birth of a child	3.04	2.88
Quit because didn't like job	2.06	1.65
Moved to new geographic area	1.32	2.06
Quit due to illness	.69	.82
Quit to attend school or training	.49	.82
Retired	.36	.41
Quit to take care of family members	.34	.82
No desirable assignments available	.16	.00
Assigned job became permanent	.13	.00
Sold business to another person or firm	.13	.00
Closed business down	.09	.00
Dissatisfied with job matching service	.04	.00
Involuntary separations		
Layoff	53.12	47.85
End of temporary or seasonal job	16.21	20.43
Fired	15.17	15.59
Workplace closed	14.56	15.59
Legal problems	.43	.00
Transportation problems	.30	.00
Project completed or job ended	.12	.54
Business failed or bankruptcy	.09	.00
Number of Separations	11,157	710

Note: The text defines voluntary and involuntary separations. Separations in the other category and separations that cannot be classified due to missing data are excluded from the table.

Table 5: The Predicted Percent Change in a Worker's Wage Due to Changes in Worker-Job Match Quality Resulting from Mobility

Reason for separation	Respondent moves from a wage job to a new	
	Wage Job	SE Job
Voluntary separations		
All voluntary separations	20.2 (21.74)	40.7 (4.55)
Quit to look for another job	18.2 (14.11)	47.2 (5.17)
Quit to take another job	25.8 (18.52)	55.9 (4.60)
Involuntary separations		
All involuntary separations	3.8 (3.84)	28.2 (3.51)
Layoff	0.7 (0.63)	23.0 (3.06)
Workplace closed	5.6 (2.33)	21.9 (2.01)
End of temporary or seasonal job	8.4 (2.60)	45.1 (2.92)
Fired	4.9 (1.91)	22.3 (1.74)

Note: The text defines voluntary and involuntary separations. Separations in the other category and separations that cannot be classified due to missing data are excluded from the table. Each specification includes the controls indicated on table 1 and clusters the standard errors at the individual level. Each prediction's z-statistic is in parenthesis.

Appendix Table A1: Parameter Estimates for the Log-Wage Models

Variables	Coeff.	SE	Coeff.	SE
Mobility Dummies				
Wage to wage	.0676	(.0050)		
Voluntary wage to wage			.1247	(.0068)
Involuntary wage to wage			-.0086	(.0078)
Wage to self-employment	.1989	(.0575)		
Voluntary wage to self-employment			.2927	(.0622)
Involuntary wage to self-employment			.1564	(.0612)
Future Mobility Dummies				
Wage to wage	-.0522	(.0041)		
Voluntary wage to wage			-.0595	(.0054)
Involuntary wage to wage			-.0458	(.0060)
Wage to self-employment	-.0590	(.0119)		
Voluntary wage to self-employment			-.0488	(.0206)
Involuntary wage to self-employment			-.0922	(.0167)
Tenure	.0249	(.0032)	.0263	(.0032)
Tenure <sup>2</sup> /10	-.0085	(.0054)	-.0094	(.0055)
Tenure <sup>3</sup> /100	.0010	(.0032)	.0010	(.0033)
Tenure <sup>4</sup> /1,000	.0000	(.0006)	.0000	(.0006)
Experience	.0837	(.0090)	.0837	(.0089)
Experience <sup>2</sup> /10	-.0460	(.0090)	-.0479	(.0090)
Experience <sup>3</sup> /100	.0130	(.0039)	.0139	(.0039)
Experience <sup>4</sup> /1,000	-.0013	(.0006)	-.0015	(.0006)
SE*Tenure	-.0191	(.0119)	-.0194	(.0118)
SE*Tenure <sup>2</sup> /10	.0126	(.0116)	.0111	(.0115)
SE*Tenure <sup>3</sup> /100	-.0029	(.0028)	-.0024	(.0028)
SE*Tenure <sup>4</sup> /1,000	.0000	(.0000)	.0000	(.0000)
SE*Experience	.0148	(.0162)	.0097	(.0161)
SE*Experience <sup>2</sup> /10	-.0257	(.0132)	-.0216	(.0013)
SE*Experience <sup>3</sup> /100	.0058	(.0030)	.0050	(.0000)
SE*Experience <sup>4</sup> /1,000	.0000	(.0000)	.0000	(.0000)
1 if highest grade completed <12	-.0091	(.0036)	-.0073	(.0036)
1 if highest grade completed =12	Ref.		Ref.	
1 if highest grade completed =13-15	.0115	(.0029)	.0095	(.0029)
1 if highest grade completed ≥16	.0250	(.0030)	.0212	(.0029)
1 if health limits ability to work	-.0122	(.0084)	-.0120	(.0084)
1 if children under 6	.0036	(.0031)	.0044	(.0031)
1 if children under 18	.0082	(.0038)	.0089	(.0037)
1 if single	Ref.		Ref.	
1 if cohabiting	-.0059	(.0058)	-.0048	(.0058)
1 if married	-.0027	(.0032)	-.0027	(.0032)
1 if divorced	-.0115	(.0045)	-.0103	(.0046)
1 if north east	Ref.		Ref.	
1 if north central	-.0070	(.0028)	-.0050	(.0028)
1 if south	-.0082	(.0030)	-.0082	(.0030)
1 if west	-.0075	(.0036)	-.0055	(.0035)
Number of observations	38,807		38,807	

Note: I also include dummy variables for each calendar year and cluster the standard errors at the individual level.

Appendix Table A2: The Predicted Percent Change in Wages Associated with Job Transitions

Panel A: Transition Occurs at 10 Years of Experience from a Job with 5 Years of Tenure						
Transitions from a wage job to a new	Years of Tenure Accumulated on the New Job					
	0	2	4	6	8	10
Wage job						
For any reason	1.5 (1.91)	11.2 (10.37)	20.1 (11.35)	28.1 (11.19)	35.5 (10.87)	42.3 (10.53)
Voluntarily	7.7 (7.60)	17.9 (14.63)	27.1 (14.53)	35.3 (13.61)	42.6 (12.75)	49.2 (11.99)
Involuntarily	-6.9 (6.32)	1.8 (1.39)	5.9 (5.16)	16.8 (6.63)	20.1 (7.20)	28.8 (7.38)
Self-Employed job						
For any reason	10.8 (3.00)	12.7 (3.51)	13.4 (3.12)	13.5 (2.66)	13.4 (2.29)	13.6 (2.04)
Voluntarily	17.7 (3.72)	19.7 (4.05)	20.4 (3.73)	20.4 (3.30)	20.1 (2.91)	19.8 (2.59)
Involuntarily	7.2 (1.40)	9.1 (1.71)	9.7 (1.67)	9.7 (1.52)	9.4 (1.35)	9.3 (1.28)
Panel B: Transition Occurs at 15 Years of Experience from a Job with 7 Years of Tenure						
Transitions from a wage job to a new	Years of Tenure Accumulated on the New Job					
	0	2	4	6	8	10
Wage job						
For any reason	-1.5 (1.64)	2.3 (5.25)	13.3 (8.03)	20.2 (8.88)	26.8 (8.98)	30.1 (8.80)
Voluntarily	4.3 (3.83)	12.3 (9.56)	19.7 (11.14)	26.6 (11.13)	33.1 (10.59)	39.0 (9.92)
Involuntarily	-9.9 (8.25)	-3.1 (2.24)	3.4 (1.88)	9.3 (4.60)	14.9 (4.99)	20.0 (5.38)
Self-Employed job						
For any reason	-3.8 (.95)	-4.2 (1.08)	-4.4 (1.00)	-3.9 (.80)	-2.6 (.47)	-.01 (.01)
Voluntarily	2.8 (.57)	2.6 (.51)	2.5 (.44)	2.7 (.44)	3.6 (.55)	5.5 (.73)
Involuntarily	-6.3 (1.19)	-6.5 (1.23)	-6.7 (1.17)	-6.4 (1.05)	-5.5 (.84)	-3.8 (.51)

Note: All estimates are calculated using Equation (4) from section III and include the controls indicated in table 1. Absolute values of each prediction's z-statistic are in parenthesis. I convert the change in log-wage to a percent change using the conversion equation  $(\exp(x)-1)$ .