Don't Quit Your Day Job:

Using Wage and Salary Earnings to Support a New Business*

Mónica García-Pérez, Christopher Goetz,

John Haltiwanger, and Kristin Sandusky†

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Abstract

This paper makes use of a newly constructed Census Bureau dataset that follows the universe of sole proprietors, employers and non-employers, over 10 years and links their transitions to their activity as employees earning wage and salary income. By combining administrative data on sole proprietors and their businesses with quarterly administrative data on wage and salary jobs held by the same individuals both preceding and concurrent with business startup, we create the unique opportunity to quantify significant workforce dynamics that have up to now remained unobserved. The data allow us to take a first glimpse at these business owners as they initiate business ventures and make the transition from wage and salary work to business ownership and back. We find that the barrier between wage and salary work and self-employment is extremely fluid, with large flows occurring in both directions. We also observe that a large fraction of business owners take on both roles simultaneously and find that this labor market diversification does have implications for the success of the businesses these owners create. The results for employer

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†St. Cloud State University; Census Bureau; University of Maryland; Census Bureau, respectively.

transitions to exit and non-employer suggest that there is a "don't quit your day job" effect that is present for new businesses. Employers are more likely to stay employers if they have a wage and salary job in the year just prior to the transitions that we are tracking. It is especially important to have a stable wage and salary job but there is also evidence that higher earnings from the wage and salary job makes transition less likely. For non-employers we find roughly similar patterns but there are some key differences. We find that having recent wage and salary income (and having higher earnings from such wage and salary activity) increases the likelihood of survival. Having recent stable wage and salary income decreases the likelihood of a complete exit but increases the likelihood of transiting to be an employer. Having recent wage and salary income in the same industry as the non-employer business has a large and positive impact on the likelihood of transiting to being a non-employer business.

KEYWORDS: firm survival, self-employment, startups, firm dynamics.

1 Introduction

The growing academic literature and national discussion about entrepreneurship in the United States has focused primarily on new and small businesses who seek to expand, serving as an engine for growth and employment. As such, much attention has been paid to what kind of financing and incentives are required to get these businesses off the ground. But entrepreneurship and self-employment take many forms, and less attention has been paid to the millions of small business owners whose goal may not be to become the next Google or Facebook. While it is tempting to see the pool of nearly 20 million sole-proprietorships, employers and non-employers, as a vast breeding ground for the big corporations of tomorrow, in fact a large fraction of them are serving as a side business or form of supplemental income for an owner's regular wage and salary job. Perhaps surprisingly, over half of sole-proprietors retain a wage job at during the initial years of a business's creation.

In this paper we use a novel dataset, created from Census Bureau data on the universe

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of employer and non-employer sole-proprietorships, which allows us to observe individuals participating in both the wage and salary sector and the self-employment realm. Our goals here are to begin exploring the dynamics along this dimension, and test whether maintaining one's "day job" helps individuals succeed in the world of self-employment. We follow the universe of sole proprietors, employers and non-employers, over 10 years as they make these transitions. By combining administrative data on sole proprietors and their businesses with quarterly administrative data on wage and salary jobs held by the same individuals both preceding and concurrent with business startup, we create the unique opportunity to quantify significant workforce dynamics that have up to now remained unobserved. The data allow us to take a first glimpse at these business owners as they initiate business ventures and make the transition from wage and salary work to business ownership and back.

Many individuals in the universe of sole-proprietors have backgrounds as wage and salary employees. Our data confirms that these two universes are tightly linked. While it is often convenient theoretically and empirically to think of an individual worker as either an employee or a self-employed entrepreneur, the fact is that many individuals take on both roles simultaneously. Moreover, the barrier between the two universes is extremely fluid, with large flows occurring in both directions. As a consequence, when studying the life-cycle of a self-employment business, the wage and salary activity of the owner is certainly a relevant factor to consider. For instance, the decision to retain one's wage and salary job while starting a business may indicate that the owner is in some way different than the "classic" entrepreneur.

The population of sole-proprietorships that we study is indeed a heterogeneous group.

Some are hobby businesses making a few thousand dollars, while others are large enterprises employing several workers. Some choose to maintain another job while others do not. Yet even non-employers who have no intention of quitting their day job have nevertheless created a meaningful business activity for themselves, and they clearly seek to achieve some level of financial success. Thus, survival may be viewed as the primary goal that is common to all businesses, and to this end it could be that wage and salary income is a form of self-financing that is used to support sole-proprietorships during its early years.

There are several channels through which working at a wage and salary job could help start a business. First of all, to the extent that people who seek to start a new business are resource-constrained, earnings from a day job be the source of funds used to pay the start-up costs and initial investments in the business. More simply, the income could act as a safety net or cushion that affords individuals the time to get the business up and running. Aside from providing direct financial support, work experience may indirectly help a self-employment business as a proxy for human capital, which may be just as important as financial capital in terms of what is important in starting a business. Wage earnings could reflect a worker's talent or knowledge of the business world, and a stable work history may signal industriousness or attachment to the workforce. More narrowly, it could reflect some sort of industry-specific or specialized knowledge needed to succeed in their field of work. While we recognize that with our data it won't be possible to neatly separate the influences of direct financing from human capital, measuring the connection between wage and salary income and self-employment success will nevertheless have meaningful interpretations.

To empirically test whether having a day job is a predictor of self-employment business

survival, we estimate hazard model regressions on the business-level time series of our sample of sole-proprietors, and estimate how the survival of businesses is affected by measures of the owner's wage and salary work experience. While we focus on year-to-year survival as our metric of success, we will account for other possible transitions in a competing risks framework. Our results for employer transitions to exit and non-employer status suggest that there is a "don't quit your dayjob" effect that is present for new businesses. Employers are more likely to stay employers if they have a wage and salary job in the year just prior to the transitions that we are tracking. It is especially important to have a stable wage and salary job but there is also evidence that higher earnings from the wage and salary job makes transition less likely. For non-employers we find roughly similar patterns but with some key differences. We find that having recent wage and salary income (and having higher earnings from such wage and salary activity) increases the likelihood of survival. Having recent stable wage and salary income decreases the likelihood of a complete exit but increases the likelihood of transitioning to becoming an employer. Having recent wage and salary income in the same industry as the non-employer business has a large and positive impact on the likelihood of transiting to being a non-employer business.

The rest of the paper is organized as follows: In section 2 we discuss the literature on firm entry and the role of financing in the dynamics of young firms. In section 3 we describe the construction of our data, and document some of the interactions between the universes of sole-proprietor and wage workers. Section 4 describes the empirical framework for estimating hazard models on our data, and Section 5 describes the results. Section 6 concludes.

2 Literature Review

Much of the literature on the dynamics of young businesses and entrepreneurs focuses on employer businesses. We have learned that while employer business startups contribute substantially to job creation in the U.S, in fact, most new employer businesses fail. However, conditional on survival, young employer businesses grow more rapidly than their more mature counterparts. Nevertheless, we have also learned that exit is more likely for small businesses whether young or old.[1]

While tracking employer businesses is clearly important for job creation, most U.S. businesses are non-employers, with nearly 20 million such businesses in existence versus only roughly 6 million employers. We know relatively little about either the dynamics of non-employer businesses or the relationship between non-employer and employer businesses. Davis, Haltiwanger, Jarmin, Krizan, Miranda, Nucci, and Sandusky (2009), using a similar database to our study, analyze the dynamics of young and small businesses in forty industries and compare the revenue growth patterns of employers and non-employers. They look at the migration of businesses from non-employer to employer, and from employer to non-employer, and find that migrant firms grow much faster than other non-employers. They also found that the vast majority of these non-employer businesses either remain as non-employers, or exit the market completely. We build on that analysis in that paper by integrating data on the non-employer and employer sole-proprietors with data on the wage and

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[1]There is a large literature on such employer dynamics. See Davis and Haltiwanger (1999) for a survey and Haltiwanger, Jarmin, and Miranda (2010) for recent evidence on these dynamics tracking all U.S. private sector employer businesses.

salary history of such business owners. In particular, we are able to connect business owners' wage and salary earnings before, during, and after the business is created. This permits us to study whether the business owners' holding a wage and salary job affects the dynamics of the firm. Additionally we can account for the fact that firms can either exit the market or transition to another stage: i.e. if an employer, convert to non-employer status, and vice versa.

As noted, the empirical literature has found that dispersion in growth rates and exit is higher among young and small firms. The patterns for young firms are consistent with the implications of theoretical models such as Jovanovic (1982), stating that firms learn about their efficiency upon entrance in the market, and if discovered to be non-profitable then decide to exit. Firms are uncertain about their profitability and learn about it only upon entrance into the market. Therefore they prefer to enter small in order to incur a minimum of costs in case of exit. On the other hand, Bruderl and Schussler (1990); Fichman and Levinthal (1991) explained firms' learning behavior with the fact that new firms often have a stock of initial resources which help them survive for some time during which they can establish their new structures. It is the existence of those initial operations that might explain why firms take some years to learn that they are not efficient and, consequently, exit the market. An alternative perspective is given in the recent work of Hurst and Pugsley (2011). While their study focuses on employer businesses, their hypotheses are potentially relevant for non-employer businesses as well. They suggest that most small businesses do not grow or innovate but instead are present to serve a particular market niche (e.g., the local neighborhood restaurant), and hence such business owners are motivated as much by non-pecuniary as pecuniary

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benefits of owning a business.

Another set of related work discusses the pattern of business income relative to wage and salary income. Heaton and Lucas (1991); Hamilton (2000); De Backer, Heim, Panousi, Ramnath, and Vidangos (2012) show that business income is more volatile and not significantly higher than the expected returns from paid labor. Owners of private firms would be more likely than salary workers to hold the remaining of their portfolios in safer assets. Therefore, it is not only the probability of a business exit, but also the fact that business income fluctuates highly, that makes income from this source riskier than labor income. In this paper, we analyze the possible connections between these two sources of income. Given their different nature, some business owners may decide to keep their wage and salary jobs during the creation of their businesses or even use their labor income as a source of financing for their businesses.

Although since the late 1980s, a large number of empirical studies addressed the issue of businesses financial constraints, most were basically focused on studying the connection between business investment and funds internally available for the firm after it is already in the market. Given that financial markets are imperfect or incomplete, firms with access to better financing possibilities should have higher survival probabilities. Some studies have documented the critical role played by available financing in successful business startups. There are, however, many paths to business ownership and from administrative data, we have learned that a startlingly high fraction of sole-proprietors retain a wage and salary job during business creation. To our knowledge there are few papers considering the effect of initial finance on the survival of firms. For instance, Audretsch, Houwelling, and Thurik (1997)

consider the interest paid on debts divided by the number of employees as a proxy to the debt structure of the firm. They found its impact on the likelihood of survival statistically significant in the sixth year subsequent to entry and negative. Aghion, Fally, and Scarpetta (2007) examine the effect of financial development on firm birth, initial size, and post-entry performance. Although, we do not look at this kind of financial resource, this literature is very close to our analysis in terms of the financial initial conditions and firm's post-entry performance. However, in this paper we evaluate the existence of business owner's wage and salary job as it enters the market (around the birth year) to understand the exogenous relationship with firm's survival, and transition, and business owner's labor income.

3   Data

The data we construct covers the near universe of active U.S. sole-proprietorships, both with and without employees, from 2003 through 2010.[2] By linking three major administrative data sources, we observe traits of the businesses themselves as well as the demographic characteristics and wage and salary employment history details of the business owner. Our universe of sole-proprietors is defined by the U.S. Census Bureau's Business Register. Census maintains the register as a mailing list and sampling frame for economic censuses and surveys The information we include on sole-proprietors (both with and without employees) and contained on the register originates primarily from federal individual income tax returns (form 1040

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[2]We do not include partnerships and incorporated businesses and their owners in our analysis because the owner PIK information currently retained on the Business Register is limited to sole-proprietorships.

Schedule C), payroll tax records for employers (form 941), and applications for an Employer Identification Number (EIN) for employers (form SS-4).

Specifically, from form 1040 Schedule C, we observe the PIK (a person identifier) of the business owner for non-employers, the net receipts (less returns and allowances) of the business, and the business's principal business activity (NAICS) code. For employers, the PIK of the business owner is obtained when the owner files IRS form SS-4 to apply for an EIN. We use these few pieces of information to track these businesses and owners over time and to link information on these businesses to characteristics of the business owner.

From Social Security Number applications information, we obtain demographic detail (age and gender) of the business owner. From business quarterly filings of state Unemployment Insurance wage records (as assembled by the Longitudinal Employment Household Dynamics program at the Census' Center for Economic Studies), we observe the employment history information (participation, earnings, and industry) for the business owner. These UI wage records permit us to identify all UI-covered jobs held by the individual (PIK) in each quarter and we use this information to create annual summary measures of the degree of continuity of the owner's wage and salary work in each year, their combined annual earnings received from all covered jobs, and the industry of their highest earnings wage and salary job in each year.[3]

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[3]Not all states are represented in the LEHD UI universe in all years from 2003 through 2010. For this reason, we limit our universe to exclude those states not covered in all years. Four states are excluded (including Connecticut, New Hampshire, Massachusetts, and the District of Columbia) but the fraction of the overall workforce represented by these five states is quite small.

3.1 Expanding our Knowledge of Workforce Dynamics

By combining these administrative data on the universe of sole-proprietor businesses and owners with the universe of covered wage and salary work in such a way that permits us to track movement across these two types of work over time, we not only make possible the research question at hand but also create the unique opportunity to quantify significant workforce dynamics that have up to now remained unobserved.

If we define the workforce to include those who have any positive earnings from a covered wage and salary job or who operate a sole-proprietorship with positive receipts at any time during the year, on average this yields a workforce of about 140 million.[4] Within this workforce, we observe that roughly twelve percent on average are self-employed (or operate their own business).[5] Among these, roughly 5 percent own businesses with employees and one in six of these owners also operate a non-employer business within the same year.

Our primary empirical analysis addresses the question of how businesses owned by owners with and without wage and salary earnings fare differently over time. To answer this question requires that we separately identify those owners who receive wage earnings while operating a business. We do observe that more than half of sole-proprietorship owners (52

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[4]Despite the fact that we exclude 5 states and do not include owners of partnerships in our analysis, it is worth noting that there are many reasons that this number is greater than monthly civilian non-farm employment as reported by the Current Population Survey (CPS) for any month during this time period - we include any job with positive earnings and we cover a twelve-month window. In addition, owners of incorporated businesses should be covered in the UI universe as owners of their own business.

[5]It is worth noting that the CPS for this time period reports roughly ten to eleven percent of the workforce receiving some self-employment earnings. Again, there are many reasons to anticipate discrepancies between the two sources of data.

percent of owners of businesses without employees and more than 20 percent of owners of businesses with employees) in any given year also have some wage and salary earnings in that same year. These numbers may be misleadingly high and point to one limitation of the administrative data we use. Because the data are annual, the year window captures both static and dynamic characteristics of business ownership. An observation that a new business owner also has wage and salary earnings in the same year may reveal only that the owner had wage and salary earnings for part of the year and started a business later in that same year. In our subsequent empirical analysis of hazards we take this into account. However, for now the interpretation of the descriptive statistics on transitions should be viewed with this limitation.

Table 1 provides descriptive statistics for business entry (birth) and exit (death) rates. These rates are shown separately for businesses with and without employees. An entry for a business type is characterized as having no activity in period t but positive activity in period t+1 for that type. An exit is the reverse – positive activity in period t but no activity in t+1. Although business-ownership entry is a trait observed for a relatively small fraction of the overall workforce in any given year (about 5 percent), this is still a large number overall given the size of the workforce. These flow rates as a fraction of businesses, however, are quite large, regardless of whether we focus on businesses with or without employees. In any given year, about a third of non-employers have just arrived, about a third are just leaving, and there is likely considerable overlap between these two groups. Among employer businesses, these fractions are smaller but still substantial - in any year, about one in six employer businesses is a new entrant and one in five is exiting (in interpreting these statistics it is important to recall we are focusing on sole-proprietorships). For both types of entering businesses, roughly one

third are initiated by owners who were not observed in the workforce in the prior year. Most of the remaining two thirds of non-employer entrants are initiated by an owner observed to have positive wage and salary earnings in the prior year. Among employer entrants in year t+1, however, only 30 percent are launched by a person with a wage and salary job in t. The remaining 40 percent of employer entrants are actually transitioning non-employer businesses (those that have acquired employees between years t and t+1).

Among entrants who enter business ownership directly from wage and salary work the prior year, 87 percent of non-employers and 78 percent of employers appear to "retain" wage and salary work in the year of business entry. Similarly, the exit rates among both employers and non-employers are higher for those owners who have year t wage and salary earnings. Among exits who have year t wage earnings, fully 90 percent of non-employers and 63 percent of employers transition to wage and salary work in year t+1. Among exiters with no year t wage and salary earnings, however, only 19 percent of non-employers (13 percent of employers) transition to wage and salary work in year t+1. For this group, the most common destination for exiters is workforce exit. One finding is that flows between employer and non-employer status are more commonly observed among those owners with no year t wage and salary work.

As we have noted, these descriptive statistics conditioning on wage and salary earnings must be interpreted with caution since they may capture within year transitions. In our empirical analysis that follows, we investigate transitions of businesses from t to t+1 as in Table 1 but in examining the impact of wage and salary earnings on such transitions we condition on wage and salary earnings in t-1. We do this to avoid the spurious correlation that can arise

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from such within year transitions. That is, an individual transiting within a year from being a wage and salary worker to a business owner may have lower observed earnings simply because the individual is not a wage and salary worker for the part of the year while being a business owner.

Before proceeding to that analysis, however, it is worth taking a closer look at those individuals who receive both wage and salary and self-employment earnings in any given year. To what extent is this state transitory and how common is the flow of workers between wage and salary work and self-employment? Table 2 shows persistence and transition patterns in the labor market bundles observed among those year t participants who are both self-employed and wage and salary employed. Among this group, half are observed with the same labor market bundle in year t+1. If we try to isolate those likely in the midst of a clean transition between wage and salary work and self-employment, we observe a total of only six percent who appear to switch between wage and salary work and business ownership sometime during year t. These patterns suggest that many business owners are repeatedly selecting to have both self-employment and wage income and the remainder of this paper addresses how this choice impacts the "success" of the business.

3.2 Characterizing Businesses

In Table 3, we show mean 2009 business characteristics separately for all non-employers, all employers, and an additional set for non-employer (employer) businesses where the owner has positive same year wage and salary earnings. We observe the following patterns.

3.2.1 *Owner Demographics:*

Owners of employer businesses are 25 percentage points more likely to be male and are much less likely to be pre- or post-retirement age than are owners of non-employer businesses. Business owners with positive same-year wage earnings are much more heavily concentrated than are those with no wage earnings to be in the two below prime-age categories. This is true for businesses with and without employees.

3.2.2 *Business Characteristics:*

Businesses owned by "day job" owners are typically smaller and younger. They are much more heavily clustered in the bottom two quartile of the business receipts distribution among both employers and non-employers than are businesses owned by an owner with no wage income. These same businesses are also much more likely to be less than two years old and much less likely to be 5 years or older. This pattern is consistent with at least two stories. On the one hand, these young and small businesses may be more in need of a supplemental infusion of outside funds (such as from a "day job"). Alternatively, from the discussion above, we already know that observed contemporaneous wage and salary earnings and business receipts may suggest some mid-year labor market transition. Because young and small businesses have a higher exit rate, owners of these businesses are at higher risk of making such a transition.

3.2.3 *Wage and Salary Employment Characteristics:*

Relative to the 2007 population of wage and salary earners, owners of both employer and non-employer businesses are more highly clustered in the top quartile of wage and salary earnings and this is consistent with both a human capital and financial capital story of entrepreneurship. Oddly, these owners are also more highly concentrated in the second quartile. If we look at the fraction of business owners with same-year wage and salary earnings in all four quarters, we see that well over half (59 percent of employers and 64 percent of non-employer business owners) do appear to be working a wage and salary job for the full year. We already have demonstrated that a higher fraction of these business owners are likely making some sort of labor market transition but this statistic suggests that there is also a relatively high fraction of business owners with same-year earnings who are not in the midst of a transition and who exhibit legitimate full-year labor market diversification.

4   Methods and regression specifications

In order to investigate the dynamics of sole-proprietors who form new businesses while retaining a wage and salary job, it is necessary to use focus on the period around the birth of the firm. The longitudinal nature of the data can then be used to follow an individual firm from the time of creation until it exits the market. Because in our data we are only able to follow firms until the final time the data is available, firms still alive in 2010 are censored. Employing a hazard model approach overcomes this issue of right-censoring, and since we limit our focus to only firms born during our sample, left-censoring is avoided. This method

flexibly accounts for the role that business age plays in the odds of survival, and allows us to test the relationship between a firm's survival and a set of explanatory variables, in particular wage and salary measures.

We use a proportional-hazard, competing risks strategy that models separate semi-parametric hazard functions for the alternate ways that a business spell can terminate (Sueyoshi, 1992). As a starting point for our analysis we assume independence of risks, although we plan to explore other models that more explicitly account for the joint choice between termination paths. Our sample will consist of only those businesses that we observe being born in our data (those born between 2003 and 2009), both to focus our attention on the universe of business startups, as well as to avoid left-censoring biases in our hazard estimation. Due to the differing nature of employer and non-employer businesses, we will also estimate the model separately for each business universe.

Distinguishing between the alternative reasons for the termination of spells here is critical since they inherently involve different outcomes. For an employer business, a complete exit implies a shutdown of the business while transiting to a non-employer implies the business survives but without employees. The latter is presumably not a sign of success but at least indicates survival. The distinction is even more important conceptually for the termination of a non-employer business. Again, an exit implies a shutdown of the business while transiting to an employer is a clear indicator of success.

The hazard function expresses the probability that business spell i terminates at time $t+1$, conditional on the fact that the business has survived until time t. A separate cause-specific hazard function exists for each of the two ways that a sole-proprietor can terminate his or her

business spell: either by completely exiting from self-employment activity, or by transitioning to another form of self-employment business. Specifically, an owner of an employer business may either exit self-employment or may simply shed workers and become a non-employer, while a non-employer can either exit or instead expand into an employer business. Generally, the hazard rate for the rth hazard is:

$$\lambda_i^r(t) = \lim_{\Delta \to 0} \frac{P(t < T_i^r < t + \Delta t | T_i^r \geq t)}{\Delta t} \tag{4.1}$$

where the owner of business i either completely exits self-employment ($r = E$), or transitions to another type of self-employment business ($r = N$).

Termination of business spell i occurs at time T, when a business of a certain type is no longer observed in our data due to one, and only one, of the two reasons. Let T^E and T^N denote discrete random variables representing the time period of exit, or transition, respectively. Also let T^C denote censoring due to the business surviving through the end of the sample in 2010. Therefore, the realized termination is $T_i^* = \min\{T_i^E, T_i^N, T_i^C\}$. The probability that business spell i lasts until T_i^*, conditional on a vector of covariates $X_i(t)$, is expressed in the survival function:

$$S(T_i^* | X_i) = exp\left[-\int_{t=1}^{T_i^*} (\lambda_i^E(t|X_i) + \lambda_i^N(t|X_i))dt\right]$$

where $\lambda^r(t|X_i) = \lambda_0^r(t)exp(X_i' * \beta^r), r \in \{E, N\}$

where X_i is a vector of covariates, β^r is a set of corresponding parameter, and $\lambda_0^r(t)$ is called the baseline hazard. The key assumption of the proportional hazard approach is that for each risk $r \in \{E, N\}$, there is such a baseline hazard function that is common to all business spells. The parameters β^r thus express the effects of the covariates X_i on business termination as a proportion of the baseline hazard. We choose to define the baseline hazard non-parametrically using the common Cox specification (Cox, 1972).

The likelihood function is defined according to the specification of Meyer, which accounts for the fact that businesses are only observed in discrete intervals and not continuously, and also allows for time-varying covariates (Meyer, 1986). Since we can only observe that business termination occurred sometime during the interval t and $t+1$, we define k_i as the full integer portion of T^*, or $k_i = t$. We assume that our time-varying covariates are constant through a given time period t, and we define $X_i(t)$ as the path of these covariates. The final key observable is how the business spell ends, so we let $\delta_i^r = 1$ if business spell i terminates because of the rth risk, either exit or transition, and $\delta_i^r = 0$ otherwise. Therefore, these δ_i^r are represented by two sets of dummy variables, one of which is set equal to 1 in the last period of a business spell, unless it is censored by the end of the sample period in 2010.

Given this, we can then express the probability that a business spell i will survive the rth hazard in the interval from t to $t+1$ as:

$$P(T_i^{(r)} \geq t+1 | T_i^{(r)} \geq t) = exp[-\int_t^{t+1} \lambda_i^r(s|X_i(s))ds]$$
$$= exp\{-exp[\gamma_r(t) + X_i(t)'\beta^r]\}$$

$$\text{where } \gamma^r(t) = ln\{\int_t^{t+1} \lambda_0^r(s)ds$$

It then follows that the resulting likelihood function is:

$$L(\gamma, \beta) = \prod_{i=1}^{N}([1 - exp\{-exp[\gamma^E(k_i) + X(k_i)'\beta^E]\}]^{\delta_i^E}$$
$$* [1 - exp\{-exp[\gamma^N(k_i) + X(k_i)'\beta^N]\}]^{\delta_i^N}$$
$$* H(k_i|X_i)$$

$$\text{where } H(k_i|X_i) = \prod_{t=0}^{k_i-1} exp\{-(exp[\gamma^E(t) + X_i(t)\beta^E]$$
$$+ exp[\gamma^N(t) + X_i(t)'\beta^N])\}$$

Since each risk contributes to the likelihood function separately and independently, maximizing this likelihood is equivalent to running the Cox proportional hazards model separately on the part of the likelihood function represented by each risk. In practice, when conducting the maximization for the likelihood for one type of hazard, we simply treat the occurrence of the other type of hazard as another form of censoring, preventing us from observing the hazard of interest. That is, in the estimation of the exit hazard, δ_i^N=0 in the period of exit. Likewise, spells ending in exit are analogously treated as censored, or $\delta^E = 0$, in the estimation of the transition hazard.

The only remaining specification choice is which $X_i(t)$ variables to include. Our hypothesis is that a sole-proprietor's wage and salary earnings and experience can affect the survival

of the self-employment business, either through direct financing or by providing a safety net, and also by proxying for the experience and human capital that may help the individual run their business. For this purpose we can include various measures about the owner's wage and salary earnings experience as observed in our database.

First, we include the wage and salary earnings in the year prior to each period of observed self-employment. We construct indicator variables for four earnings categories, denoted by $earn\_cat1_{t-1}$, $earn\_cat2_{t-1}$, $earn\_cat3_{t-1}$, $earn\_cat4_{t-1}$, where the cutoffs represent quartiles from the universe of wage and salary earners in 2007. Estimation coefficients on these dummy variables are all relative to the omitted group, $earn\_miss_{t-1}$, a dummy variable indicating that the owner had no observable wage earnings in the previous year. We include the earnings from $t-1$ as our measure of interest, because due to our data structure, year t earnings are endogenous to the business termination decision which occurs in the same time period, and may in fact represent wages earned *after* the self-employment business has terminated. As previously discussed, because we only observe businesses through annual aggregates, we do not measure termination until $t+1$, even though termination in fact occurred at some point during t. Thus, a sole-proprietor who exits and then takes on wage and salary work during the same year will consequently have higher wage and salary earnings in t, as well as business termination observed in $t+1$, even though the causality is the reverse of what we are trying to measure. Lagged earnings variables, on the other hand, occur before the period when possible failure occurs, and are thus more plausibly exogenous to this kind of bias.

In some specifications we include a measure of whether the owner is carrying a stable and continuous wage and salary job into the period of self-employment. Using the quarterly

wage history for the year $t-1$, we let $earn\_stable_{t-1} = 1$ if the business owner was employed at any wage and salary job during all 4 quarters of the previous year, and 0 otherwise. This variable helps identify owners who are stable workers in the wage and salary sector, versus those who may simply be dabbling or even making some kind of transition. Such job stability may have a separate effect above and beyond the sheer magnitude of the wage and salary earnings, working perhaps as a proxy for human capital or experience.

To focus more narrowly on whether owners are bringing industry-specific knowledge into their self-employment venture, we construct a measure for whether the owner's wage and salary experience has been in the same industry as their sole-proprietorship. Specifically we let $same\_ind_{t-1} = 1$ if the the 2-digit NAICS sector of the self-employment business and that of the wage and salary job are the same in the previous year.

Aside from the wage and salary measures, we also include several controls. The size of the business is a natural determinant of business survival, and we construct 4 categories based on the net receipts of the business in year t. Specifically, we define four dummy variables, $size\_cat1$, $size\_cat2$, $size\_cat3$, and $size\_cat4$, where the cutoffs come from the quartiles of net receipts based on the universe of sole-proprietors in 2007. We also include individual characteristics of the business owner such as sex and age group indicators for under 25, 25-34, 35-54, 55-64, and 65+. Year dummies for the base period are also included to control for macroeconomic factors that affect the mean probability of survival. Finally, we include controls to capture that businesses making some type of transition from period t to $t+1$ may have done so at various times during the calendar year. As such, we include dummies for how many quarters of wage and salary income the individual had in period t.

5 Analysis of Results

5.1 Employers

Summary statistics for the sample of employer businesses born during the 2003-2009 period are shown in Table 4, where all calculations use figures from the year of birth to avoid double counting. In considering these statistics, it is important to emphasize that our sample is comprised only of those that started employer businesses after 2002. Most new employer businesses are owned by males with an especially high proportion in the 35-54 age range. About 30 percent of new employer businesses have recent prior experience as a wage and salary worker in the same industry. The new employer businesses are relatively small for employer businesses (the size cutoffs are based on the universe of sole-proprietors). Moreover, most of the new employer businesses don't have wage and salary income in period $t-1$ and those that do have relatively low earnings compared to the universe of wage and salary workers. Still, almost 12 percent have wage and salary income that is in the top quartile

The results from the competing risks, proportional hazard model on this group of businesses are shown in Table 5. Columns 1 and 2 contain the estimates of the effects of the covariates on the hazard of self-employment exit and transition to non-employer status, respectively, in a specification that includes the lagged wage earnings categories, but not the measure of a stable job. Columns 3 and 4 rerun the specification adding the stability measure. All coefficients are expressed in odds-ratio form, where magnitudes greater than 1 imply that the covariate increases the probability of failure due to the given cause, while a magnitude less than 1 states that the covariate diminishes the probability of failure. The percentage de-

viation from 1 is approximately the percentage change of the baseline hazard due to a 1 unit change in the independent variable.

In column 1, we see that coefficients on the earnings categories from year $t - 1$ are below one, and statistically significant, showing that higher earnings have a negative effect on the probability of employer business exit (the omitted group are those with no wage and salary earnings in period $t - 1$). The lowest earnings category reduces the baseline hazard by about 15 percent, and the magnitudes are monotonically larger for higher earnings categories, with the highest category implying an over 25 percent reduction. Moving to column 2, the earnings variables also appear to be associated with a lower probability of transitioning to becoming a non-employer. While the lowest earnings category has a coefficient slightly above 1, all other earnings categories are below 1 and monotonically decreasing, with similar magnitudes to the exit hazard. Note, however, that because separate baseline hazards are estimated for each of the two risks, strict comparison between the magnitudes of the coefficients is not appropriate.

Column 3 shows the result from adding the measure of job stability along side of the earnings categories. The coefficient of .734 on the stability proxy implies that an employer who also worked all 4 quarters in the previous year is about 27% less likely to exit relative to the baseline hazard. While the coefficients on the earnings categories remain below 1 and significant, the magnitude of the earnings no longer seems to matter as much as in Column 1, as higher earnings categories in fact have somewhat *less* of a negative effect on exit than do the lower categories. This suggests that it may be the presence of a stable job, more than the sheer amount of recent earnings, that predicts business exit for employers. On the transition hazard in column 4, however, the stability proxy comes in below 1 but less strongly than in the exit

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specification, and does not change the coefficients on the earnings categories as substantially.

Other coefficients also yield significant predictions about the probability of failure due to the two risks. Business size is a strong determinant of survival in terms of both hazards. Columns 2 and 4 show that the probability of exit is decreasing monotonically in size, with businesses in the largest category as measured by receipts having a hazard that is 60-65% lower compared to the smallest size group in all specifications. Male employers are slightly less likely by 3-4 percentage points to exit self-employment than females, although they are significantly more likely to take the transition route. The age profile for exit is u-shaped, with the hazard decreasing to 28% below baseline for the $55-64$ group, and then rising back to around baseline rates for the $65+$ category. Conversely, the age-profile for transition is hump-shaped, with prime-aged workers having around a 25% higher hazard of converting to non-employer status than the $under25$ group, while $65+$ employers are less likely to make this transition. Finally, the $same\_ind_{t-1}$ indicator has a small but counterintuitively positive impact on the probability of exit, but a small and negative impact on the transition hazard.

The results for employer transitions to exit and non-employer suggest that there is a "don't quit your dayjob" effect that is present for employers. Employers are more likely to stay employers if they have a wage and salary job in the year just prior to the transitions that we are tracking. It is especially important to have a stable wage and salary job but there is also evidence that higher earnings from the wage and salary job makes transition less likely (especially the transition from employer to non-employer).

5.2 Non-employers

The summary statistics for a random sample of 5 million non-employers born between 2003-2009 are shown in Table 6, with calculations again coming from the year of birth only. New non-employer businesses have about the same fraction of males and females (although slightly higher for males) and while most are from the 35-54 range there are more new non-employer businesses from young individuals. New non-employer businesses are more likely to have had wage and salary income in the prior year than new employer businesses and tend to be from lower earnings quartiles (conditional on having wage and salary income).[6]

The results from the hazard regressions on this population are shown in Table 7. Again, columns 1 and 2 show results from a specification including only the earnings categories from $t-1$, while columns 3 and 4 rerun the specification by adding the stable job measure. The first column of Table 7 shows that the pattern of earnings coefficients that we saw with employers is also apparent for non-employers. All the coefficients on the wage earnings categories are significant and below one, implying that wage and salary earnings decrease the hazard of exit. They also exhibit monotonicity in the earnings categories, from the lowest earnings category that is associated with a 3% decrease in the hazard relative to someone without any wage earnings, to the highest earners who have a 13% lower hazard rate. The inclusion of the work stability measure in column 3 also yields a similar result to that in the employer specification, with the stability variable entering with a coefficient below 1, but dampening the effect of the

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[6]To make this calculation, the shares in earnings categories need to be divided by one minus the share of those without earnings.

earnings categories and eliminating the monotone relationship between earnings categories and exit. Specifically, having a stable job in $t-1$ reduces the hazard of exit by about 10% below baseline, and the 4 earnings categories are left with coefficients implying 2-7% reductions.

Columns 2 and 4 show the results from estimating the transition hazard, which in this case is the expansion of the non-employer business into an employer. Thus, unlike in the employer transition case, a termination of the non-employer business spell is in fact a success. Having wage and salary earnings lowers the likelihood of making this type of transition. Having earnings in the lowest category reduces the hazard of making the transition by 32%, and the hazard only decreases more with higher earnings categories. However, the job stability coefficient of 1.23 implies that having a steady job in the previous period leads to a significantly higher transition probability. Moreover, the $same\_ind_{t-1}$ coefficient is well above 1 for the first time. Its magnitude is about 1.58 in both columns 2 and 4, which says that working a day job in the same industry as one's non-employer business is associated with a 58% higher hazard of expanding into an employer.

Size categories are again very important determinants of survival, especially for the transition hazard. For instance, a non-employer of the largest size category is dramatically more likely to expand into an employer, at over 500% of the baseline hazard. The probability of exit is again decreasing monotonically in business size, with the largest category of business having an approximately 40% lower hazard.

The exit hazard of males is higher by a couple percentage points compared to females, although their hazard of expanding into an employer is much higher at around 80% over baseline. The age profile of the exit hazard is mildly u-shaped, similar to the employer case.

In the transition hazard, the profile is strongly hump-shaped, with the $35 - 54$ and $55 - 64$ age groups having over 350% higher hazards than the the $under25$ cohort, but the coefficient dropping down to about 275% for the $65+$ category.

In terms of "don't quit your day job" effects, we find evidence that non-employers are more likely to survive as non-employers if they have prior year wage and salary income (both levels and stability matter). One potentially puzzling aspect in this regard is that having wage and salary earnings in the prior year makes the transition to becoming an employer less likely. This may provide some evidence supporting Hurst and Pugsley (2011) claim on small businesses. Contrary to theory, they found that small businesses are less likely to grow and innovate. They explain that owners' motives behind the creation of these businesses may be mostly based on nonpecunary benefits rather than having the need to create a new product. The are more likely to remain small or exit. On the other hand we find that having a stable prior year wage and salary job in the prior year (holding the level of earnings constant), as well as working in the same industry, both make such transitions more likely. Part of what might account for these patterns is that there is a relatively high proportion of non-employers for whom this is a secondary source of income. As such, most such secondary jobs are unlikely to lead to an employer business.

5.3   Robustness

As mentioned previously, one noticeable feature of the data is that a large fraction of non-employer business are very small, perhaps representing owners' hobbies, or similar activities. To alleviate concerns that the results from the hazard regressions are unduly influenced by

such businesses, we rerun the hazard specifications restricting the sample of non-employer businesses to consist of only those who report over 1000 dollars in net receipts for the tax year. That is, any nonemployer business with 1000 or less in receipts is considered to not have existed during the given year, potentially changing entry and exit years, as well as creating gaps between spells. This new threshold also affects the definition of an exit and a transition in the employer context, so we rerun those specifications as well. Results from this robustness analysis for employers and non-employers are shown in Tables 8 and 9, respectively. Coefficients on the earnings categories and work stability measures are similar to their corresponding values in Tables 5 and 7, showing that the baseline results are not being driven by the smallest nonemployer businesses.

6 Concluding Remarks

We have explored the connections between having a wage and salary job during the time of startup and the first few years of a new business. The evidence overwhelmingly shows that many new businesses start up while the business owner also continues to have wage and salary income. Even when the latter is not present, the career history in terms of being a wage and salary worker of the entrepreneur is likely relevant on several dimensions. For one, the prior career as a worker represents accumulation of various dimensions of human capital that are likely important for the survival and growth of a young business.

Our focus is on the survival of young employer and non-employer businesses. In considering survival, we use a competing risks framework recognizing that young employer busi-

nesses might either shutdown a business completely or transit to being a non-employer business. Likewise, a young non-employer business might either shutdown the business completely or transit to being an employer business. Transits from employer to non-employer businesses are more aptly interpretable as a failure of some sort while transits from non-employer to employer businesses are interpretable as a form of success.

Consistent with the literature, we find that there is an inverse relationship between survival of employer and non-employer businesses with the age and size of the business. We also find some interesting patterns by demographics of the business owners. Male employer business owners are less likely to shutdown a business but more likely to transit to non-employers than female owners. Older employer business owners are less likely to shutdown a business. Middled aged employer business owners are more likely than other age groups to transit to being a non-employer. Male owners of non-employer businesses are less likely to shutdown or transit. Older owner of non-employers are less likely to exit. Middle aged owners of non-employer businesses are the most likely to transit to being employers.

Having controlled for such factors, we also find that the recent wage and salary income and experiences are relevant for business survival and growth. For employer businesses, we find that having recent wage and salary income increases the likelihood of survival of employer businesses in that lowers both the likelihood of exit and transition to being a non-employer. We also find that having a recent period of stable wage and salary income increases survival in terms of both margins. We find that having recent wage and salary experience in the same industry as the industry of the business increases the likelihood of a complete exit but lowers the probability of transiting to a non-employer.

For non-employers we find roughly similar patterns but there are some key differences. We find that having recent wage and salary income (and having higher earnings from such wage and salary activity) increases the likelihood of survival. Having recent stable wage and salary income decreases the likelihood of a complete exit but increases the likelihood of transiting to be an employer. Having recent wage and salary income in the same industry as the non-employer business has a large and positive impact on the likelihood of transiting to being a non-employer business.

Why are there "don't quit your day job" effects? There are likely multiple mechanisms at work. For one, many of the sole-proprietorships (especially non-employers) are hobby or supplemental income businesses. As such, we are tracking individuals whose primary activity is being an employee but have supplemental income activity. Even for such businesses, our findings are interesting because they suggest that the survival of such businesses depends on the wage and salary income. Another possible mechanism is the role of financing to start up and sustain the business. This may be important for both supplemental income businesses as well as businesses where there are aspirations of growth. In this respect, we find it interesting that wage and salary income is relevant for not only non-employer businesses but also for the survival of employer businesses. Another related mechanism might be the human capital that a wage and salary activity contributes to the business activity. In the latter respect, we find it interesting that past experience as an employee in the same industry is especially important for the transition from non-employer to employer.

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Table 1: Business Dynamics for Owners With and Without Wage and Salary Earnings

	Overall	Non-employers	Employers
Rate of Entry of t+1 Businesses (Including Transitions)			
Entry Rate as % Workforce	4%	4%	< 0.5%
Entry Rate as % Businesses	34%	35%	15%
Where Do Owners of Entering Businesses Come From?			
% From Outside Workforce in t	30%	31%	30%
% Flow between N and E		1%	40%
% From Wage and Salary Work in t	70%	68%	30%
Of these, % retain WS work in t+1	87%	87%	78%
Rate of Exit of t Businesses (Including Transitions)			
All Businesses	33%	35%	18%
Owner has Wage and Salary Work in t	41%	42%	28%
Owner Does Not Have Wage and Salary Work in t	25%	26%	15%
Where Do Exiting Business Owners With WS Earnings Go?			
Exit workforce in t+1	10%	9.5%	10%
Exit to wage and salary work in t+1	90%	90%	63%
Flow between N and E		0.5%	27%
Where Do Exiting Business Owners Without WS Earnings Go?			
Exit workforce in t+1	80%	78%	50%
Exit to wage and salary work in t+1	20%	19%	13%
Flow between N and E		3%	37%

Note: These numbers reflect t to $t+1$ transitions from pooled data from 2003 through 2010. N=Nonemployer, E=Employer, WS=Wage and Salary

Table 2: Business Owners with Same-Year Wage and Salary Earnings in t

Pct no change in workforce bundle in t+1	50%
Pct Wage and salary only in t-1 and self-employment only in t+1	3.50%
Pct self-employment only in t-1 and wage and salary only in t+1	2.50%

Table 3: Descriptive Statistics

Variable		All Non-Employers	Non-Employers with "day Job"	All Employers	Employers with "day job"
Owner Characteristics					
Male		56%	55%	75%	70%
Age					
	< 25	6%	8%	1%	1%
	25 to 34	18%	22%	6%	10%
	35 to 54	47%	50%	48%	55%
	55 to 64	19%	15%	29%	25%
	65+	10%	5%	16%	9%
Business Characteristics					
Net Receipts					
	1st Quartile	26%	37%	26%	34%
	2nd Quartile	25%	30%	26%	28%
	3rd Quartile	27%	21%	25%	22%
	4th Quartile	23%	12%	23%	16%
Age					
	< 1 year	20%	27%	8%	16%
	1 year	10%	11%	7%	10%
	2 years	9%	9%	6%	8%
	3 years	7%	7%	6%	7%
	4 years	7%	8%	5%	6%
	5+ years	47%	38%	68%	53%
Wage and Salary Characteristics					
WS earnings					
	1st Quartile		15%		16%
	2nd Quartile		30%		33%
	3rd Quartile		25%		22%
	4th Quartile		30%		29%
# quarters worked					
	1 Quarter		12%		16%
	2 Quarters		12%		13%
	3 Quarters		12%		12%
	4 Quarters		64%		59%

Note: All receipts and earnings distributions are defined using 2007 Thresholds. Receipts distributions are defined separately for employer and non-employer businesses. Wage and Salary earnings thresholds are defined using all summed annual wage and salary earnings for all individuals (regardless of business ownership) in 2007. WS=Wage and Salary

Table 4: Regression Sample Summary Statistics: Employers

Variable	Mean	Std. Dev.
$earn\_cat1_{t-1}$	0.052	0.222
$earn\_cat2_{t-1}$	0.147	0.354
$earn\_cat3_{t-1}$	0.131	0.338
$earn\_cat4_{t-1}$	0.118	0.323
$earn\_miss_{t-1}$	0.551	0.497
$earn\_stable_{t-1}$	0.279	0.449
$same\_ind_{t-1}$	0.286	0.452
$size\_cat1$	0.562	0.496
$size\_cat2$	0.225	0.417
$size\_cat3$	0.138	0.345
$size\_cat4$	0.075	0.263
$male$	0.671	0.47
$under25$	0.028	0.166
$25-34$	0.182	0.386
$35-54$	0.574	0.495
$55-64$	0.146	0.353
$65+$	0.07	0.256
N		1,002,765

Table 5: Cox Hazards Regressions: Employers

	(1) Exit	(2) Transition	(3) Exit	(4) Transition
$earn\_cat1_{t-1}$	0.852***	1.034***	0.855***	1.034***
	(0.00568)	(0.00903)	(0.00566)	(0.00903)
$earn\_cat2_{t-1}$	0.824***	0.918***	0.899***	0.948***
	(0.00425)	(0.00647)	(0.00468)	(0.00687)
$earn\_cat3_{t-1}$	0.765***	0.838***	0.921***	0.903***
	(0.00460)	(0.00716)	(0.00618)	(0.00878)
$earn\_cat4_{t-1}$	0.736***	0.731***	0.909***	0.797***
	(0.00468)	(0.00699)	(0.00668)	(0.00881)
$earn\_stable_{t-1}$			0.734***	0.876***
			(0.00418)	(0.00766)
$same\_ind_{t-1}$	1.071***	0.969***	1.061***	0.965***
	(0.00355)	(0.00457)	(0.00351)	(0.00456)
$size\_cat2$	0.554***	0.528***	0.554***	0.528***
	(0.00200)	(0.00273)	(0.00200)	(0.00273)
$size\_cat3$	0.416***	0.560***	0.416***	0.560***
	(0.00199)	(0.00325)	(0.00199)	(0.00325)
$size\_cat4$	0.349***	0.398***	0.349***	0.398***
	(0.00221)	(0.00320)	(0.00221)	(0.00320)
$male$	0.973***	1.243***	0.966***	1.239***
	(0.00282)	(0.00531)	(0.00279)	(0.00530)
$25-34$	0.882***	1.293***	0.876***	1.289***
	(0.00781)	(0.0198)	(0.00776)	(0.0198)
$35-54$	0.780***	1.246***	0.775***	1.243***
	(0.00662)	(0.0185)	(0.00658)	(0.0185)
$55-64$	0.721***	1.113***	0.718***	1.110***
	(0.00653)	(0.0172)	(0.00650)	(0.0172)
$65+$	1.016	0.665***	1.015	0.664***
	(0.00958)	(0.0115)	(0.00957)	(0.0115)
Observations	3081449	3081449	3081449	3081449

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Cox hazard regressions in this table are conducted on a sample of 1,002,765 spells of employer businesses born between 2003 and 2009, during their span of activity from 2003-2010. Total number of observations is 3,081,449, representing an average spell duration of 3.07 years. 437,960 spells end with exit from self-employment, while 244,846 end via transition to nonemployer. The remainder are censored in 2010. Controls include dummy variables for the base year t, as well as dummies for the number of quarters worked in year t, although coefficients are not reported. All standard errors are heteroskedasticty-robust.

Table 6: Regression Sample Summary Statistics: Nonemployers

Variable	Mean	Std. Dev.
$earn\_cat1_{t-1}$	0.082	0.275
$earn\_cat2_{t-1}$	0.235	0.424
$earn\_cat3_{t-1}$	0.216	0.411
$earn\_cat4_{t-1}$	0.178	0.383
$earn\_miss_{t-1}$	0.288	0.453
$same\_ind$	0.116	0.32
$earn\_stable_{t-1}$	0.487	0.5
$size\_cat1$	0.39	0.488
$size\_cat2$	0.296	0.456
$size\_cat3$	0.2	0.4
$size\_cat4$	0.115	0.319
$male$	0.537	0.499
$under25$	0.137	0.344
$25-34$	0.254	0.435
$35-54$	0.44	0.496
$55-64$	0.117	0.322
$65+$	0.05	0.217
N	5,000,000	

Table 7: Cox Hazards Regressions: Nonemployers

	(1) Exit	(2) Transition	(3) Exit	(4) Transition
$earn\_cat1\_t - 1$	0.969***	0.681***	0.967***	0.683***
	(0.00147)	(0.0141)	(0.00147)	(0.0142)
$earn\_cat2\_t - 1$	0.943***	0.671***	0.979***	0.637***
	(0.00121)	(0.00974)	(0.00131)	(0.0100)
$earn\_cat3\_t - 1$	0.875***	0.624***	0.938***	0.554***
	(0.00128)	(0.0109)	(0.00156)	(0.0118)
$earn\_cat4\_t - 1$	0.867***	0.504***	0.935***	0.440***
	(0.00136)	(0.00974)	(0.00167)	(0.0103)
$earn\_stable\_t - 1$			0.901***	1.231***
			(0.00109)	(0.0243)
$same\_ind$	1.036***	1.574***	1.034***	1.580***
	(0.00129)	(0.0155)	(0.00129)	(0.0156)
$size\_cat2$	0.801***	0.906***	0.801***	0.906***
	(0.000709)	(0.0156)	(0.000709)	(0.0156)
$size\_cat3$	0.662***	1.155***	0.662***	1.155***
	(0.000757)	(0.0202)	(0.000756)	(0.0202)
$size\_cat4$	0.591***	5.350***	0.591***	5.355***
	(0.000883)	(0.0820)	(0.000882)	(0.0822)
$male$	1.030***	1.829***	1.026***	1.837***
	(0.000764)	(0.0180)	(0.000763)	(0.0181)
$25 - 34$	0.963***	2.219***	0.961***	2.224***
	(0.00114)	(0.0666)	(0.00114)	(0.0667)
$35 - 54$	0.931***	3.444***	0.929***	3.456***
	(0.00106)	(0.0995)	(0.00106)	(0.0998)
$55 - 64$	0.903***	3.607***	0.902***	3.618***
	(0.00135)	(0.108)	(0.00134)	(0.108)
$65+$	0.930***	2.771***	0.932***	2.772***
	(0.00180)	(0.0889)	(0.00180)	(0.0889)
Observations	10411135	10411135	10411135	10411135

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Cox hazard regressions in this table are conducted on a random sample of 5,000,000 spells of nonemployer businesses born between 2003 and 2009, during their span of activity from 2003-2010. Total number of observations is 10,411,135, representing an average spell duration of 2.08 years. 4,016,851 spells end with exit from self-employment, while 54,214 end via transition to employer. The remainder are censored in 2010. Controls include dummy variables for the base year t, as well as dummies for the number of quarters worked in year t, although coefficients are not reported. All standard errors are heteroskedasticty-robust.

Table 8: Employer Regressions: With Nonemployer Rcpts. Threshold (over $1000)

	(1) Exit	(2) Transition	(3) Exit	(4) Transition
$earn\_cat1_{t-1}$	0.853***	1.037***	0.856***	1.037***
	(0.00562)	(0.00920)	(0.00561)	(0.00919)
$earn\_cat2_{t-1}$	0.823***	0.924***	0.898***	0.950***
	(0.00420)	(0.00660)	(0.00462)	(0.00699)
$earn\_cat3_{t-1}$	0.766***	0.838***	0.923***	0.896***
	(0.00454)	(0.00730)	(0.00612)	(0.00890)
$earn\_cat4_{t-1}$	0.739***	0.722***	0.915***	0.780***
	(0.00464)	(0.00709)	(0.00663)	(0.00885)
$same\_ind\_t - 1$	1.069***	0.969***	1.059***	0.966***
	(0.00351)	(0.00464)	(0.00347)	(0.00463)
$earn\_stable\_t - 1$			0.732***	0.888***
			(0.00412)	(0.00795)
$size\_cat2$	0.552***	0.530***	0.553***	0.530***
	(0.00198)	(0.00279)	(0.00198)	(0.00279)
$size\_cat3$	0.415***	0.567***	0.415***	0.567***
	(0.00197)	(0.00333)	(0.00197)	(0.00333)
$size\_cat4$	0.348***	0.401***	0.348***	0.401***
	(0.00219)	(0.00327)	(0.00218)	(0.00327)
$male$	0.973***	1.255***	0.965***	1.251***
	(0.00278)	(0.00546)	(0.00276)	(0.00545)
$25 - 34$	0.883***	1.305***	0.877***	1.302***
	(0.00774)	(0.0204)	(0.00769)	(0.0204)
$35 - 54$	0.782***	1.261***	0.776***	1.258***
	(0.00656)	(0.0192)	(0.00652)	(0.0191)
$55 - 64$	0.724***	1.120***	0.721***	1.118***
	(0.00649)	(0.0177)	(0.00646)	(0.0177)
$65+$	1.014	0.662***	1.013	0.661***
	(0.00947)	(0.0117)	(0.00946)	(0.0117)
Observations	3081449	3081449	3081449	3081449

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Cox hazard regressions in this table are conducted on a sample of 1,002,765 spells of employer businesses born between 2003 and 2009, during their span of activity from 2003-2010. Total number of observations is 3,081,449, representing an average spell duration of 3.07 years. 445,002 spells end with exit from self-employment, while 237,804 end via transition to nonemployer. The remainder are censored in 2010. Controls include dummy variables for the base year t, as well as dummies for the number of quarters worked in year t, although coefficients are not reported. All standard errors are heteroskedasticty-robust.

Table 9: Nonemployer Regressions: With Nonemployer Rcpts. Threshold (over $1000)

	(1) Exit	(2) Transition	(3) Exit	(4) Transition
$earn\_cat1_{t-1}$	0.961***	0.716***	0.959***	0.718***
	(0.00144)	(0.0137)	(0.00143)	(0.0137)
$earn\_cat2_{t-1}$	0.933***	0.670***	0.971***	0.634***
	(0.00118)	(0.00919)	(0.00128)	(0.00945)
$earn\_cat3_{t-1}$	0.875***	0.648***	0.944***	0.572***
	(0.00126)	(0.0105)	(0.00154)	(0.0113)
$earn\_cat4_{t-1}$	0.876***	0.511***	0.952***	0.443***
	(0.00135)	(0.00927)	(0.00168)	(0.00979)
$earn\_stable_{t-1}$			0.892***	1.247***
			(0.00107)	(0.0230)
$same\_ind$	1.033***	1.523***	1.031***	1.528***
	(0.00125)	(0.0143)	(0.00125)	(0.0144)
$size\_cat2$	0.794***	0.863***	0.794***	0.863***
	(0.000682)	(0.0147)	(0.000681)	(0.0147)
$size\_cat3$	0.639***	1.105***	0.639***	1.105***
	(0.000704)	(0.0194)	(0.000704)	(0.0194)
$size\_cat4$	0.564***	5.005***	0.563***	5.011***
	(0.000808)	(0.0793)	(0.000807)	(0.0795)
$male$	1.030***	1.829***	1.026***	1.838***
	(0.000764)	(0.0171)	(0.000762)	(0.0172)
$25-34$	0.966***	2.157***	0.964***	2.163***
	(0.00116)	(0.0614)	(0.00116)	(0.0616)
$35-54$	0.937***	3.275***	0.935***	3.289***
	(0.00108)	(0.0898)	(0.00108)	(0.0902)
$55-64$	0.914***	3.443***	0.912***	3.456***
	(0.00136)	(0.0978)	(0.00136)	(0.0982)
$65+$	0.945***	2.775***	0.947***	2.778***
	(0.00182)	(0.0845)	(0.00183)	(0.0846)
Observations	10373970	10373970	10373970	10373970

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: Cox hazard regressions in this table are conducted on a random sample of 5,000,000 spells of nonemployer businesses born between 2003 and 2009, during their span of activity from 2003-2010. Total number of observations is 10,373,970, representing an average spell duration of 2.07 years. 4,013,803 spells end with exit from self-employment, while 60,317 end via transition to employer. The remainder are censored in 2010. Controls include dummy variables for the base year t, as well as dummies for the number of quarters worked in year t, although coefficients are not reported. All standard errors are heteroskedasticty-robust.