The Ins and Outs of Entrepreneurship: Explaining the Decline in Self-Employment

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Introduction

As Davis and Haltiwanger (2014) have carefully documented, the rate of formation of new employer firms has been declining the United States, having fallen approximately 50 percent from its 1977 level. One plausible possible explanation for this decline are the many changes in demographics and industrial composition that have occurred over this time period, given the significant effects that demographic and industrial patterns have on the probability of engaging in entrepreneurship.

However, we believe that another factor plays an important role in the rate of entrepreneurial activity over and above that of demographics and industrial patterns - the 2007/20088 recession and the weak recovery which followed. The tendency of people to enter into and exit from entrepreneurship varies as a function of the level of demand growth. Entry into entrepreneurship is enhanced, and exit from it is reduced, during periods of economic expansion, while exit from entrepreneurship rises and entry into it declines, during economic downturns.

Because entrepreneurial activity is central to many economic theories, and a focus of public policy, understanding the causes of the decline in entrepreneurship is of great importance to both policy makers and academics alike. Developing more accurate predictions of entrepreneurial activity is an important policy question, particularly if maintaining entrepreneurship during economic downturns is an objective. Therefore, we seek to identify precisely the effect of demand growth on rates of entrepreneurship net of the effects of changes in demographics and industrial composition.

Supporting entrepreneurship during an economic downturn requires an understanding of the causes of changes in the level of entrepreneurship. That, in turn, requires an understanding of

different types of entrepreneurship. Self-employment is the basic labor market measure of entrepreneurship. While some have criticized this measure (Hurst and Pugsley, 2010; Sanandaji (2010)), others have shown its value in a wide range of studies (Blanchflower and Shadforth; 2007; Evans and Leighton; 1989; Holtz-Eakin et al., 1994a; Lazear, 2004). We employ self-employment as our measure of entrepreneurship since we are concerned with transitions between different labor market states and self-employment is the best available measure of entrepreneurship that is comparable to other measures of labor market states.

Self-employment takes two forms: incorporated self-employment, where the person in business for him or herself is the head of a corporation, and unincorporated self-employment, where the person is not. Because the two types of self-employment differ in many ways, including their demographic and industrial composition and patterns of entry and exit, we examine them separately here.

Our focus is on the effect of aggregate demand on levels of self-employment. When aggregate demand declines, it exerts a downward pressure on self-employment. The effect of decline in aggregate demand on levels of entrepreneurship may be direct, resulting from a lower ability to of existing and would-be entrepreneurs to find customers, or it may be indirect, resulting from a lower ability of existing and would-be entrepreneurs to obtain financing. Our analysis does not seek to differentiate between these two mechanisms because they are contemporaneous, but, instead, considers together all mechanisms contributing to the decline in entrepreneurship that occurs during economic downturns and the rise in entrepreneurship that occurs during economic expansions.

The association between levels of aggregate demand and levels of entrepreneurship might exist because economic downturns lead to reduced entry into entrepreneurship or because they

lead to increased exit from it or both. The relative size of the effect of aggregate demand effect on entry into and exit from entrepreneurship is important. For policy makers to intervene to offset this downward pressure, they need to know whether the decline stems primarily from reduced entry into self-employment or increased exit from it. On the entry side, this implies identifying which transitions are most affected by a decline in demand: the transition from wage employment to self-employment, the transition from unemployment to self-employment, or the transition to self-employment from outside of the labor force. Similarly, on the exit side, it is important to identify which transitions are most affected by a fall in demand: the transition from self-employment to wage employment, the transition from self-employment to unemployment, or the transition from self-employment to outside the labor force. Furthermore, the value of any policy intervention depends on whether the patterns described above apply to incorporated self-employment, unincorporated self-employment or both.

Unfortunately, the existing literature offers little guidance to policy makers for three reasons. First, some labor market theories predict patterns counter to those observed in the data. For instance, several models posit that self-employment should rise during economic downturns because lower expected earnings from wage employment and greater unemployment both reduce the self-employment reservation wage (von Grieff, 2009). Because self-employment declines during economic downturns, these models are of little guidance to policy makers seeking to understand why self-employment declines during recessions.

Second, the literature on self-employment has generally focused on cross-sectional, individual and financial factors in explaining the transition to and from self-employment because at any given time entry and exit patterns are driven primarily by individual demographics, occupation and industry distribution. While these characteristics lead many people to enter into

business, they also lead many people to exit business, resulting in large effects of these factors on both entry and exit. The similar magnitudes of entry and exit mean that these factors have little influence on net entry.

Moreover, these demographic and industry factors do not vary substantially as a function of demand conditions. Therefore, they cannot account for the declines in self-employment levels observed during recessions, although an underlying trend decline may accelerated by a recession along the lines of the cyclical cleansing arguments offered around unemployment. Explaining why self-employment declines during recessions requires an examination of the effect of demand conditions on transitions to and from self-employment and other labor market states, controlling for the trends associated with demographic and industry factors.

Third, the existing literature looks primarily at unincorporated self-employment. To the extent that the patterns of entry and exist into self-employment are the same for both incorporated and unincorporated self-employment, this focus on one variant is not problematic. However, our research suggests that demographic factors, industrial compositions and aggregate demand influence entry into and exit from incorporated and unincorporated self-employment differently. Therefore, efforts to draw inference about self-employment require examination of both varieties.

We combine two academic approaches to model the level of self-employment: Flows-based analysis of labor market states (e.g, Barnichon and Nekarda, 2012; Elsby, Michaels and Solon, 2009) and individual-level models of the decision to become or cease to be an entrepreneur (e.g., Blanchflower and Oswald, 1998; Holtz-Eakin, Joulfaian, and Rosen, 1994) By combining a gross flows perspective that focuses on the underlying decisions to take up self-employed or to quit self-employment in favor another labor market status (unemployment, employee, out of the labor force) with an older approach to entrepreneurship that focuses on industry, occupation and demographic

factors on the decision to enter or exist entrepreneurship, we better predict entrepreneurial entry and exist because both margins are important, particularly in a cyclical downturn. Specifically, we use a Markov model to generate a decomposition that provides the long-run implications of changes in the cyclical trend and identify the impact of cyclical factors on changes in the rate of incorporated self-employment, net of demographic, industry, and occupational factors.

We examine quarterly micro-level data on labor market transitions taken from the Current Population Survey from 2000 to 2013 to examine how the economic cycle affects transitions into and out of self-employment from other labor market states. We control for individual demographics and occupational influences in our analysis to better pinpoint the effect of demand growth on this shift difficult.

We find that general economic activity has a relatively small effect on the marginal rate of transition into and out of self-employment from other labor market states when compared to demographic and industrial differences. But because the baseline numbers of people transitioning into and out of self-employment from other labor market states are normally similar and offsetting, cyclical factors can lead to large changes in the number of people self-employed in a point in time.

More importantly, we find that recent low levels of entrepreneurship are primarily the result of cyclical factors. Most of the time, gross entry and exit are large, but in relative balance. As a result, net entry into self-employment is relatively small (Hipple, 2010). However, a contraction in demand has a large effect on self-employment because it alters the balance between self-employment entry and exit. Falling demand leads to an increase in exit from entrepreneurship, but has countervailing effects on entry. While a decrease in demand leads to a decrease in the opportunity cost of entry into entrepreneurship by increasing the rate of unemployment, the entry into entrepreneurship is higher from employment than from unemployment than from out of the

labor market. Finally, we find that the effect of changes in demand on self-employment differ for incorporated and unincorporated self-employment.

2.0 Background and previous literature

A portion of the labor economics literature argues that demand growth may have an inverse relationship with self-employment. Dubbing this effect the "recession-pull hypothesis," some researchers argue that the probability of self-employment will rise when demand decreases because "both decreased expected earnings in paid employment and a higher probability of unemployment imply a lower reservation wage for self-employment (Von Grieff, 2009: 556). Indirect evidence offers some support for this argument. Laid off workers are between two and three times as likely as those who retain jobs to become self-employed (von Greiff, 2009).

However, not all of the literature agrees with this argument. Even if economic downturns decrease expected earnings from wage employment and, therefore, lower the reservation wage for self-employment, this effect does not necessarily imply that self-employment will increase during economic downturns. Evaluating whether self-employment figures will increase when demand shrinks also requires consideration of three other important factors: which labor market states people are transitioning into and out of; the magnitudes of baseline labor market transitions between different labor market states, and the effect of demand on transitions out of self-employment as well as transitions in.

However, the opportunity cost of transition into and out of self-employment depends very much on the states people are transitioning between. For instance, the opportunity cost of transitioning to self-employment is higher for those who are wage employed than those who are unemployed. Because of these differences in opportunity cost, those employed by others, those

unemployed, and those out of the labor force should be expected to transition to self-employment with different probabilities. Moreover, people often choose between different labor market states to transition into. For instance, people who are unemployed might choose between starting a business or exiting the labor force. Consequently, understanding the effect of changes in aggregate demand changes on self-employment requires an understanding of its effects on a variety of different labor market transitions.

In addition, the magnitudes of transition between different labor market states are unequal. In all states of the economy, there is less movement between self-employment and unemployment than between self-employment and wage employment. Consequently, measuring the effect of demand growth on self-employment requires consideration of the magnitudes of both the baseline transitions between labor market states and the size of the effect of changes in demand on self-employment entry and exit.

Furthermore, people transition both into and out of self-employment. Demand growth may affect both self-employment entry and exit, making consideration of one important to measuring the other. Because the magnitudes of these effects may differ, consideration of the factors affecting entry without consideration of the factors affecting exit will fail to take into account any potentially countervailing effects and draw incorrect inference about the effect of economic downturns on self-employment.

The literature on self-employment focuses largely on individual and industry factors that influence the transition to and from self-employment. Wagner (2003) explains that personality and attitudes affect the probability that people will transition to self-employment. Koellinger, Minniti and Schade (2007) identify overconfidence as a prime psychological factor. Van Praag

and Cramer (2001) explain that entrepreneurial ability and risk attitude affect the transitions into self-employment.

Shane (2008) documents the high level of variation across industries and occupations in self-employment activity, and explains that the industry in which people are working and the occupations they have chosen have a large effect on their odds of becoming self-employed. Hipple (2010) explains that demographic differences, such as age, race, gender and education lead to significant differences in self-employment rates among different groups of Americans. Parker (2004) summarizes the economics literature on self-employment and shows that wealth, income, access to health insurance, marital status, and a variety of other individual-level attributes also affect the propensity to become self-employed. Holtz-Eakin, Joulfaian and Rosen (1994a) and Blanchflower and Oswald (1998) find that access to capital affects the transition into self-employment, while Holtz-Eakin, Joulfaian and Rosen (1994b) find that access to capital affects transition out of self-employment.

This literature provides important insights into who becomes self-employed. Individual attributes and industry and occupation may account for most of the variation in self-employment. However, the distribution of individual, industry and occupational characteristics varies little with the business cycle. Thus, the variation in self-employment rates observed during economic expansions and contractions cannot be explained by these factors. Rather, it is likely that expansions or contractions in demand affect entry into and exit from self-employment in ways that account for the variation in self-employment rates across economic conditions. To assess this hypothesis, we examine the effect of variation in demand across industry and time on self-employment entry and exit, controlling for occupation and individual demographics.

3.0 The cyclicality of self-employment figures

The number of incorporated and unincorporated self-employed Americans dropped substantially during the Great Recession, and neither form of self-employment has rebounded in the subsequent recovery. From November 2007 to June 2009, the Bureau of Labor Statistics (BLS) estimates that the number of incorporated self-employed decreased from 5.8 million to 5.3 million people, while the number of unincorporated self-employed stayed constant at 10.1 million people. At the end of 2014, the number of incorporated self-employed individuals stood at 5.7 million people, while the number of unincorporated self-employed people was at 9.3 million people.

The decline in self-employment during the Great Recession is notable only in its severity. While data limitations preclude us from examining the decline in incorporated self-employment during recessions prior to 2001, we can look at the rise and fall in overall self-employment during those downturns. As Figure 1 shows, self-employment declined as a fraction of the labor force during eight of the ten recessions that the United States has experienced since 1948.

Figure 1 also shows an important split in the self-employment data between incorporated and unincorporated self-employment beginning in 2000. Individuals who are self-employed and respond that the "business is incorporated," are included in BLS statistics for wage and salary employment, while the unincorporated self-employed are reported separately. With the survey redesign in 1994, the change in the survey process boosted reports of incorporated self-employment (Hipple, 2010). This distinction is important, in part, because the number of incorporated self-employed continued to increase up to the great recession and as we will show incorporated self-employed are typically higher skilled, older individuals who may be more representative of the entrepreneurs typically modeled in the literature. In our modeling, we analyze

both forms of self-employment, although we think the results for the incorporated should be more relevant to policy makers.

While the business cycle is measured by changes in aggregate demand, economic downturns are often occur in conjunction with adverse pressures on financial factors. We are agnostic about the source of the adverse effects on those in business for themselves when aggregate demand declines. Whether the negative effect comes from a difficulty in obtaining financing or a difficulty in making sales, we suggest that when the business cycle is contracting, self-employment will decline, and when the business cycle is expanding, self-employment will increase.

Business cycles do not impact all sectors of the economy equally and self-employment is concentrated in sectors that may either be unusually exposed to the business cycle or relatively sheltered from it. For example, construction and extraction have an above average level of unincorporated self-employment in the US (15.9 percent) (Hippel, 2010) and construction activity fell disproportionally in the 2007-2009 recession. Nonetheless, self-employment is a small enough share of economic activity in any broad sector of the economy, that we use sector activity levels as a proxy for demand for self-employed workers in the sector.

We construct economic activity measures by major industries to account for opportunity and possible financing constraints The Bureau of Economic Analysis only produces annual breakdowns of gross domestic product by sector. Where the quarterly data on output by product and service groups were specific enough to the industrial category, we employ those numbers directly. In cases where the quarterly data was an incomplete set of activities, we use the annual sectoral breakdown of GDP combined with the quarterly data on output to proxy for the time pattern between annual data points.

This approach to measuring demand allows the model to reflect both cross sectional variation in severity of the downturn and timing of the downturn and early recovery period. With each of the measures we standardize the data series and then include three quarters of lagged values to allow for some uncertainty on the timing of the effects. Figure 2 shows the time pattern of the standardized demand variables. Both the strong cyclical component and the cross sectoral variation are evident in Figure 2 where these demand measures are shown along with recession bars to indicate the official dates for the two recessions included in our sample period and simply smoother is used to illustrate that the general pattern dips in recessions is near zero in moderate expansion periods. Nonetheless significant inter-industry variation is evident in all periods.

4.0 A Model of the Ins and Outs of Entrepreneurship

The flows approach to labor markets simply recognizes that the law of motion governing a labor market state can be informative on the levels of labor market states evolve over time after a shock. For example, Barnichon and Nekrada (2012) apply a simple law of motion on the unemployment state to forecast near-term unemployment rates more accurately than a standard time series approach and Tasci (2012) applies a similar approach to estimate the natural rate of unemployment. To illustrate the implications of the approach on entrepreneurship, consider a simple two-state world where a population of individuals (normalized to 1) are either self-employed (*S*) or not (~*S*) and transition with probability $\lambda_t^{S,\sim S}$ from *S* to ~*S* and with probability $\lambda_t^{\sim S,S}$ from ~*S* to *S*. The law of motion which governs transition is:

$$S_{t+1} - S_t = -\lambda_t^{S,\sim S}\ S_t + \lambda_t^{\sim S,S}(1 - S_t)$$

With ex post measures of transition that are measured at all times *t*, this law of motion is just an identity that describes the state of entrepreneurship. To make this simple model more

informative, we just need reliable statistical models of the transition probabilities, which can be used to project how the self-employment rate responds to changes in the transition probabilities.

In the case of entrepreneurship, we will want to further disaggregate the labor market states in order to have complete model of labor market transition. We draw a distinction between incorporated and unincorporated self-employment because the costs of entering the two states are likely to be different, along with the ability and interest in maintaining that labor market status. Similarly, the probabilities of moving from being an employee of another entity, from being unemployed, or form being out of the labor market to a self-employment state are likely to be predictably different.

The five labor markets states we will consider are: employee, *E*; unemployed, *U*; incorporated self-employment, *I*; unincorporated self-employment (or contractors, to distinguish from unemployed) *C*; and individuals not in the labor force, *N*. Applying this approach to generating laws of motion to the larger set of states to the incorporated self-employment states results in:

$$\Delta I_t = I_{t+1} - I_t = -\left(\lambda_t^{IC} + \lambda_t^{IE} + \lambda_t^{IU} + \lambda_t^{IN}\right) I_t + \lambda_t^{CI} C_t + \lambda_t^{EI} E_t + \lambda_t^{UI} U_t + \lambda_t^{NI} N_t$$

Parallel equations are implied for each of the other labor market states. Defining a vector $\mathbf{Y_t} = [I_t, C_t, E_t, U_t, N_t]$, then the transitions are $\mathbf{Y_{t+1}} - \mathbf{Y_t} = \mathbf{A}\mathbf{Y_t}$, where **A**=

$$\begin{pmatrix} -\lambda_t^{IC} - \lambda_t^{IE} - \lambda_t^{IU} - \lambda_t^{IN} & \lambda_t^{CI} & \lambda_t^{EI} & \lambda_t^{UI} & \lambda_t^{NI} \\ \lambda_t^{IC} & -\lambda_t^{CI} - \lambda_t^{CE} - \lambda_t^{CU} - \lambda_t^{CN} & \lambda_t^{EC} & \lambda_t^{UC} & \lambda_t^{NC} \\ \lambda_t^{IE} & \lambda_t^{CE} & -\lambda_t^{EI} - \lambda_t^{EC} - \lambda_t^{EU} - \lambda_t^{EN} & \lambda_t^{UE} & \lambda_t^{NE} \\ \lambda_t^{IU} & \lambda_t^{CU} & \lambda_t^{EU} & -\lambda_t^{UI} - \lambda_t^{UC} - \lambda_t^{UE} - \lambda_t^{UN} & \lambda_t^{NU} \\ \lambda_t^{IN} & \lambda_t^{CN} & \lambda_t^{EN} & \lambda_t^{UN} & -\lambda_t^{NI} - \lambda_t^{NC} - \lambda_t^{NE} - \lambda_t^{NU} \end{pmatrix}$$

A variety of models could be applied to estimate the transition probabilities included in the A matrix. In the labor market flows literature simple time series models are applied to estimate

the relevant components of the transition probabilities. For this paper, we seek to include both individual characteristics and aggregate influences including cyclical elements.

The existing literature on self-employment decisions has identified a range of individual characteristics matter to transition probabilities that depend on individual characteristics (for example, age, sex race, and education) *i* that slowly evolve with the population over time. Prior researcher has also noted that there are occupations and industries that are easily entered by potential entrepreneurs or that remain more prone to layoffs et cetera, which we will treat as the fixed industry component of transition probabilities associated with an individual's prior industry and occupation, I_j. Finally, there are potential cyclically varying probability associated with the identification and funding of projects, which could vary both by industry and time: V_{jt}. In addition, the fact that transition probabilities likely vary according to the potential entrepreneurs current labor market state (i.e., employee or unemployed) imply that even if the transition probabilities to and from entrepreneurship were acyclical, the rate of entrepreneurship could still show cyclical patterns due to the cyclicality of other states. Each of transition probabilities can be represented

$$\lambda_t^{EI} = f(X_{it}, I_j, V_{jt})$$

We implement with a set of five multinomial logit models for each of the source labor market state. A complete transition model can be estimated with the desired controls from if individuals are observed in two adjoining years with information on their status in both years according to standard multinomial logit models, for example the probability of moving states (S_{it}=U to S_{it}=I) from unemployment to incorporated self-employment would be estimated accordingly:

$$\Pr\left(I_{it+1} \middle| U_{it}; X_{it}, I_j, V_{jt}\right) = \begin{cases} \dfrac{1}{1 + \sum_{m \in (I,C,E,N)} e^{\beta_{mU} X_{it} + \gamma_{mU} I_j + \delta_{mU} V_{jt}}}, if S_{it} = U \\ \dfrac{e^{\beta_{SU} X_{it} + \gamma_{SU} I_j + \delta_{SU} V_{jt}}}{1 + \sum_{m \in (I,C,E,N)} e^{\beta_{mU} X_{it} + \gamma_{mU} I_j + \delta_{mU} V_{jt}}}, if\ S_{it} \in (I,C,E,N) \end{cases}$$

To simplify the notation, an *i* subscript implies a specific *j* for all states except *N* (out of the labor force), where individuals have no known industry or occupation and experience just the aggregate cyclical variability. The estimated parameters (β, γ, δ) are allowed to vary for each transition pair, the original and prospective states of the worker, but are fixed across time. While the notation is complicated, the estimates are relatively straightforward implement with a multinomial logit and with the same approach applied to each origin state yield consistent estimators of the Markov transition matrix. Given these estimates, the cyclical questions that this research explores can be largely be formulated in terms of the marginal effect of the sum of the demand effect variable and its lags on the transition probability from a given labor market state to another, at average values of the control variable. We apply standard delta-method techniques to formulate standard errors around these derivatives.

5.0 Measuring Entrepreneurship Transitions in the CPS

We examine both incorporated and unincorporated self-employment because the characteristics of the two groups are clearly distinct. The most basic measure of entrepreneurship, unincorporated, self-employment, may overstate the number of "true" entrepreneurs by including many people who are acting as independent contractors. On the other hand, incorporated self-employment may underestimate the roughly 75 percent of entrepreneurs who use sole proprietorships or partnerships as their legal structure.

Our analysis uses Current Population Survey to observe transitions in labor force status. This is the same source as the Bureau of Labor Statistics figures on labor market flows and official self-employment figures. Our analysis requires matched survey data in order to observe transitions in and out of self-employment, because the labor market flows data do not report transitions between all forms of self-employment and other labor market states. In particular, self-employed

individuals who describe their businesses as incorporated are typically grouped with those working for other people (whom we will refer to as employees). In addition, our desire to control for individual characteristics and industry level demand levels necessitates use of matched micro data. We matched the survey waves using state, household id, survey period, and then confirmed the person level match with demographic factors in race, age and education.

Our year-over-year matches achieve an efficiency of approximately 65%. This matched household data introduces non-random variation in the data because of households sometimes change in non-random manners between surveys. Household who are more likely to not-report in the second period are also more likely to transition between labor market states than households who stay at the same address and report in the second year. We systematically adjust the sampling weights to account for attrition in two ways.

First, young households are more likely to be excluded from the matched sample than older households. We use the observed frequencies in the unmatched sample to adjust the sample weights: $\ddot{\omega}(age = a, S = s) = \frac{\sum_{unmatch} \dot{\omega}(age=a,S=s)}{\sum_{match} \dot{\omega}(age=a,S=s)} \dot{\omega}(age = a, S = s), \forall a, s$

Where age is a grouped and S refers to the labor market status of the individual in the first year of observation. Such an adjustment enforces that the matched sample weights sum to expected population estimates of the unmatched sample.

A second adjustment is also applied, because even after the population characteristics have been accounted for, transitions in the sample are less frequent than implied. Importantly, for our topic the net change in the number of entrepreneurs is understated:

$$\sum \ddot{\omega}(S_{t+1} = t, S_t = s) - \sum \ddot{\omega}(S_{t+1} = s, S_t = t) \neq pop(S_{t+1} = t) - pop(S_t = t) \quad (1)$$

Where the weights ($\ddot{\omega}$) are the estimated sample weights and *pop* are published estimates of the population of individuals in state *t* at the same time periods. Applying a minimum cross

entropy estimator (Golan, A., G. G. Judge, and D. Miller. 1996) solves this problem by finding the least entropy-weighted change in the weights that approaches matching the population constraints. In particular, the minimum entropy solution solves:

$$\min_{P} \sum_{i} p_i \ln \frac{p_i}{\ddot{\omega}_i / \sum \ddot{\omega}_i} \quad subject\ to \quad \sum_i p_i x_{k,i} = \overline{x_k}\ and \sum_i p_i = 1$$

There are k+1 constraints in this minimization where $x_{k,i}$ are the sample analogues to the relevant population moments, $\overline{x_k}$. To achieve a balanced transition sample, we take the sum of the observed transitions in the matched sample to BLS-published population changes as described as in equation (1) as annual constraints for each labor market status other than normalized group (out of the labor force).[1] This results in small adjustments to the sampling weights that produce transition rate that match the annual adjustment in the following labor forces statuses: out of the labor force, unemployed, employed, incorporated self-employment, and unincorporated self-employment. These adjusted sample weights are used throughout the estimation procedures.

Existing research on entrepreneurship shows that individual demographics, such as education, race, age, and gender play a role in self-employment (Hipple, 2010). While the primary focus is on the cyclical properties of self-employment transitions, other employment states do have significant demographic components, which may influence transitions rates to and from self-employment. The age structure of labor force is important in all transition decisions and we model the structure flexibly by including dummy variables for decadal age groups. The education levels of the incorporated self-employed are noticeably higher than the general population, therefore we control for education levels with dummy variables for education status including high school

dropouts, some college and associate degrees, completed bachelor degrees and graduate degrees, with high school graduates as the excluded category.

The fractions of the population for the demographic, occupation and industry variables are shown for each labor force state in Table 1. It is immediately clear that the demographic, occupation and industry are quite different of alternative labor market states.

6.0 Results

Most of the time, flows into and out of self-employment are roughly balanced, with individual demographics, occupation and industry characteristics accounting for much of the variation in who transitions into and out of both self-employment states. Figure 3 shows the baseline transition probabilities applied to the 2003 populations in each labor market status. This is not a specific prediction for flows in 2003 because it accounts for neither demographics, industries, nor cyclical variation, but it does illustrate some patterns implied by the baseline estimates. In particular it illustrates that the number of people transitioning into incorporated self-employment from the other labor market states is roughly equal to the number of people transitioning out of incorporated self-employment states from the other labor market states and, as with most gross flows analyses, the probabilities of movement are far larger than the net changes in the labor market states. However, the baseline transition rates from specific labor market states to and from self-employment states are quite different in order to maintain this balance. For example, the baseline rate of transition from incorporated self-employment to wage employment is 32.2 percent, while the baseline transition rate from incorporated self-employment to unemployment is only 1.3 percent. Similarly, the baseline transition rate from wage employment to self-employment is 1.4 percent, while the baseline transition rate from unemployment to self-employment is 0.8 percent.

6.1 Results for Incorporated Self-Employment

Table 2 presents the baseline probabilities and marginal impacts of the demographic and industry factors on each of the transition rates to or from incorporated self- employment. The baseline is the predicted probability of transitioning from a labor market status 1 to labor market status 2, at the average value of all data for individuals who were recorded in labor force status 1 in our estimation sample. Given the large numbers of observations for each labor force status, the standard errors for the baseline probabilities are 1/100 of the baseline transition probability or less for each of our equations despite using standard errors clustered by quarter and year. The marginal impacts of demographic and industry factors are estimated zero for all of the demand variables and at the mean of all other variables. Coefficients shown in bold are statistically significant at the 95% confidence level.

There is a very strong demographic impact on transition rates to and from self-employment, as prior literature (Parker, 2004; Hipple, 2010) has reported. For example, employees between the ages of 20 and 29 have reduced probability of transitions to self-employment relative to the excluded category of employees aged 40 to 49 that is large roughly enough to offset the expected average transition rate.

The large scale of many of the coefficients shows why evolving demographic patterns within labor market statuses could alter realized transition rates. The normal composition of the population in a given labor market state can over-represent certain demographic and industry groups as shown in Table 2, but recessions can significantly alter the composition of the population in a given state (for example, unemployment).

The demographic and industry factors are interesting because many implied probabilities (the higher entry and lower exit transitions for older workers into incorporated self-employment) point to the potential for secular rise in incorporated self-employment. However, to be complete, all of the demographic and industrial variables needs to be accounted for a specific prediction of the implied trends.

Our model estimates account directly for the effects of demand variation which would include economy-wide business cycles, as shown in Figure 3, through our quarterly industry-level output growth measures. We have no ex ante prediction for how the timing of demand was likely to effect the transition decisions of individuals, so we allowed the current quarter and up to three quarters of lagged values to enter into the transition equations. When evaluating the response of individuals to demand conditions, we considered the sum of these coefficients, in order to allow for uncertainty in the timing of responses. Given that demand variables are all standardized, the reported effects are as if demand for all industries rose one standard deviation for four quarters, although, in most cases, the statistical significance of the demand variables is concentrated in a quarter or two.

In Table 3, we show the marginal effect of changing demand conditions on the transitions to and from incorporated self-employment. The model estimates identify that all of the primary transitions of interest show statistically significant impacts of the demand variables.[2] While the results are expressed in terms of positive responses to growth, Figure 1 shows that during the depths of the 2007 to 2009 recession, most industries saw two standard deviation declines in demand that persisted for some time.

[2] Recall, that the models were implemented with robust standard errors accounting for clustering at a quarterly level. This was specifically applied to make the statistical significance of our demand variables evaluated according to just the time-series variation.

It is worth noting that in each case the cyclical effect is substantially smaller than the baseline probability, so that even a two standard deviation change in demand conditions would leave much of the flow out incorporated self-employment unaltered. Contrasted with flows out of incorporated self-employment, a one standard deviation change in demand has a more substantial effect relative to the baseline probability for transitions into incorporated self-employment. Economic growth significantly motivates people to leave wage employment and unemployment to enter incorporated self-employment. Economic growth also boosts flows to self-employment from out of the labor force. These results show that incorporated self-employment tends to be relatively "sticky" for workers in the labor market state, but flows into incorporated self-employment are relatively sensitive to demand conditions.

In order to examine the critical role of different model components on the expected flows we decompose the most relevant flows into three components in Figure 4: "demo & industry" predicts the charted while allowing only the composition of individual level variables shown in Table 2 to vary, "+ cycle" adds the current demand effects, and "+ cycle & LF status" accounts for the changing size of the source labor market statuses. The predicted flows in Figure are expressed as percentages of the working age population and are aligned for comparison of flows in and out incorporated self-employment. As was shown previously, the baseline flows are typically largely offsetting for a given pair of labor market states. This is true even when accounting for the changing demographic and industry data. The importance of the cyclical variation to predicted flows into incorporated self-employment is evident both for wage employment and unemployment. Interestingly, the cyclical effects, while statistically significant, play a far smaller role in the flows out of incorporated self-employment. Finally, the changing size of the pool of people in unemployment has a significant effect on expected flows into incorporated self-

employment particularly during and following the great recession. While associated effects are also implied for the employee pool, the percentage change in the size of the employee pool is far smaller and thus the predicted impacts of the change in the pool size are also smaller.

Figure 6 decomposes the cyclical effect into the six possible transitions between self-employment and unemployment, wage employment and out of the labor force. While figure 5 demonstrated that the evolving labor force status associated with declining wage employment can alter the predicted flows into self-employment states, the Markov model stresses the direct changes in the flows so figure 6 does not include labor force status effects. This graph measures the predicted flows associated with cyclical effects in terms of their contribution (positive or negative) to the incorporated self-employment in terms of percentage points of the population. This decomposition makes it very clear that the largest magnitude effect of the business cycle is on transitions from employee to incorporated self-employment. When the economy is expanding more people transition into incorporated self-employment from employment and when the economy is contracting fewer people do. Despite improved economic conditions following the Great Recession this model shows that predicted flows of employees to incorporated self-employment have not gone significantly positive as would be needed to reverse the decline in flows into incorporated self-employment that accompanied the great recession. At this point, it appears that the weak recovery is consistent with the slow adjustment process predicted by the Markov model.

6.2 Results for Unincorporated Self-Employment

Similar to the incorporated self-employment, demographic and industrial factors are often highly significant predictors of who enters or exits unincorporated self-employment, shown in Table 4. While the details is not particularly important to this analysis, the table shows a similar

pattern of older more skilled individuals choosing unincorporated self-employment, even if the coefficients indicate that this patterns is a bit weaker than with incorporated self-employment.

In addition, cyclical factors are statistically significant predictors of most transitions rates across time, as shown in Table 5. Thinking about the case of recession, there are statistically significant larger flows to unemployment and out of the labor force, but smaller flows into wage employment. Entry into unincorporated self-employment is measured as pro-cyclical for employment and out of the labor force, so recessions lower the flows. The one transition that does not show statistically significant flows associated with the demand variables is the flow from unemployment to incorporated self-employment. There is little reliable response by the unemployed in response cyclical factors.

These predicted transition rates to and from unincorporated self-employment result in a pattern very distinct from those seen in incorporated self-employment results. Figure 7 repeats the exercise of breaking the predicted transition rates into a trend component (based on demographic and industry variation) and then adds a cyclical and a labor force composition components. A notable feature of the predicted flows to and from wage employment is that the two flows are almost exactly offsetting. Unlike incorporated self-employment, periods with substantial inflows from wage employment also have substantial outflows, so that changes in the flows are unlikely to be persistent or "sticky" as they are for incorporated self-employment.

In a recession the cyclical response for flows from unemployment to unincorporated self-employment (shown by the "+ Cycle" lines in Figure 7) is to decline, similar to the pattern observed in the incorporated self-employed. However, in contrast with the incorporated self-employment flows, the response of the unincorporated self-employed boosts flows into unemployment during a recession. The higher levels of unemployment following a recession do show up as boosting

flows even though the predicted flow rates are dampened when demand conditions are weak. So while there is some role for unincorporated self-employment to lower unemployment following a recession, it is not reasonable to describe this flow as counter-cyclical. These flow rates imply that the cyclical decomposition for the unincorporated self-employment flows should be substantially different than for the incorporated self-employment flows.

Figure 8 repeats the decomposition exercise for the unincorporated. Like the flows for incorporated self-employment, we again see that the most significant cyclical flows are associated with movements to and from wage employment. However in this case, the demand-induced flows in and out employment are typically nearly offsetting implying that there would be little net increment to the share of the population in unincorporated self-employment in response to demand conditions. A similar, if somewhat, smaller pattern is notable in the flows to and from those not in the labor force, but again with little impact on the share in unincorporated self-employment. Finally, despite being statistically significant the role of the cyclical response of unemployment to the flows into and out unincorporated self-employment are reliable small compared with the other flows.

6.3 Movements between Incorporated and Unincorporated Self-Employment

Through the analysis to this point we have focused on movements from other labor market states into one of the two self-employment categories, but in the process, we have shown that the two self -employment states have distinct cyclical patterns. We now consider the movements to and from incorporated and unincorporated self-employment.

Like other categories we see large, but offsetting, flows as demonstrated in Figure 3. The Bureau of Labor Statistics uses the incorporation question to infer the "Class" of the worker, with

unincorporated self-employment being reported separately, while the incorporated are aggregated with wage employees. However the Bureau does not publish flows between the two self-employment categories, so there is no source to judge the accuracy of the flows evident in matched CPS data. Nonetheless, it is clear that despite the clear differences between the characteristics and behaviors of the two types of self-employment there could be errors answering the incorporation question that could boost these flows. For this reason, we consider our results to each self-employment category separately.

Once again, there are many significant demographic and industry effects on the transition probabilities in both directions, as shown in Table 6. Among the many significant differences, there is a clear tendency for younger, less educated workers to depart from incorporated self-employment, while prime age workers with more skills. The demand variables are again statistically significant factors in the flows, as shown in Table 7, but for both flow directions the likelihood of the transition is lower when demand conditions are stronger. In addition, the pattern that the cyclical flow is larger relative to the baseline (which are roughly sized to produce equivalent flows in normal times) for the unincorporated holds true again. These patterns suggest that the flows between these states are not simply the random patterns that might be anticipated if the household with self-employed individuals were highly erratic in answering the incorporation question. Given the statistically significant flows evident in Table 7, it is worth examining how these flows might alter the population of self-employed workers.

In Figure 7, the decomposition of the flows is organized around the share of the population in incorporated self-employment. This is implies that predicted flows from incorporated to unincorporated are show as negative values, even though they would add to the numbers of unincorporated self-employed. The flows both being countercyclical allows for them to be

offsetting, but the size of the flows from unincorporated self-employment are far larger. That said, they are roughly an order of magnitude smaller than the largest flows from other labor market states. So while these flows are statistically significant, the most important cyclical flows for both incorporated and unincorporated self-employment are those associated with wage employment in a firm other than your own.

Discussion

Entrepreneurship is an economic good. New businesses and existing businesses are complements because they engage in different kinds of innovation, employ different people, and provide different products and services. A decline in the amount of entrepreneurship from a protracted recession and weak recovery hinders the economy be reducing one of these complementary economic goods.

Moreover, entrepreneurship is an essential part of the process of creative destruction through which capitalist economies grow. While only a small fraction of newly formed businesses grows, the growing fraction is important because it makes up for those that do not grow and those that die.

The number of self-employed Americans dropped dramatically during the Great Recession, prompting concern in Washington about how to foster entrepreneurship in America. While the evaluation of specific policy suggestions is beyond the scope of what our analysis can address, an accurate understanding of how demand affects self-employment entry and exit is necessary to evaluate the ideas that have emerged in the aftermath of a particularly severe economic downturn.

Some observers have argued that economic downturns increase entrepreneurial activity by spurring people to go into business for themselves when faced with the potential loss of wage

employment, making entrepreneurial activity counter cyclical (Fairlie, 2012). Positing that the opportunity cost of going into business for oneself declines in recessions as unemployment rises (Parker, 2004), this school of thought argues that laid-off workers are "pushed" into self-employment (LaRochelle-Côté, 2010).

This school of thought draws primarily on empirical evidence that shows that the unemployed have greater odds of entering into self-employment than the wage employed (Evans and Leighton, 1990). However, this evidence does not consider the odds of exiting self-employment, the relatively small number of unemployed people as compared to those in other labor force categories, or the difference between incorporated and unincorporated self-employment. Moreover, those who posit that entrepreneurship is counter cyclical generally argue that exit from self-employment does not rise much during a recession because self-employed people can weather recessions by cutting their compensation.

However, the data suggest, on balance, that recessions reduce self-employment. Would-be entrepreneurs see recessions as a time when a new business is less likely to be successful (Haltiwanger et al, 2012) and existing entrepreneurs find it more difficult to keep their businesses going (Hipple, 2010). Though some people shift to self-employment when a contracting economy threatens wage employment, that effect is small relative to the effect of a contracting economy on other labor market transitions. The largest cyclical effect is the increase in the flows from self-employment to unemployment in a downturn.

Moreover, in recessions, the flows into self-employment decline significantly. People employed by others or out of the labor force are become less likely to enter into self-employment. The reduction in entry into self-employment from wage employment is the primary factor accounting for the declining numbers of self-employed individuals during economic downturns.

While the negative effect of economic downturns on self-employment is similar to that of recessions on wage employment, it is more muted. The effect of a decline in demand on the transition to unemployment from wage employment is 50 percent larger than the effect of a negative demand shock on transitions to unemployment from self-employment. This pattern is consistent with the argument that the self-employed have more discretion to preserve employment by lowering their compensation in downturns.

Policy Implications

Our analysis points to three policy implications. First, entrepreneurship is not a silver bullet that can be used to solve problems at the time of economic downturns, despite the belief of many scholars and policy makers that it might be. For instance, Congregado et al (2009:1) argue, "As national economies continue to feel the forces of globalization, and large companies proceed with outsourcing and downsizing strategies, efforts to find alternative sources of economic growth are intensifying. For many years, governments around the world have regarded entrepreneurship as a promising candidate in this respect." Unfortunately, entry into entrepreneurship declines during recessions and exit from it accelerates. Therefore, entrepreneurship can do little to counterbalance the negative employment effects of reduced demand.

Second, efforts to enhance entrepreneurship need to consider ways to reduce exit from entrepreneurship as well as ways to enhance entry into it. This is important since changes in demand affect exit from self-employment as well as entry to it. Because the magnitude of the change in exit is substantial, policy makers abilities to maintain entrepreneurial activity in a downturn requires efforts to minimize the number of people who exit from self-employment.

Third, the effects of economic growth on entrepreneurship are not unique; increases in demand stimulate entry into and reduce exit from self- much as they stimulate entry into and reduce exit from wage employment. This is important because governments around the world seek to encourage entrepreneurship through loan guarantees, employment assistance and subsidized business consulting services. Special programs often exist to move unemployed into business formation rather than wage employment, as is the case with bridging allowances in Germany (Pfeiffer and Reese, 2000).

However, the cost of these programs is not trivial. Storey (2006) found that in the United Kingdom these programs accounted for 0.8 percent of GDP. To the extent that these programs are more expensive than efforts to move the unemployed into wage employment, policy makers might be better off focusing on wage employment programs rather than self-employment programs. Similarly, to the extent that preservation of self-employment is less costly than the creation of self-employment, policy makers might prefer to focus on efforts to keep the self-employed from exiting self-employment rather than encouraging more people to enter into self-employment.

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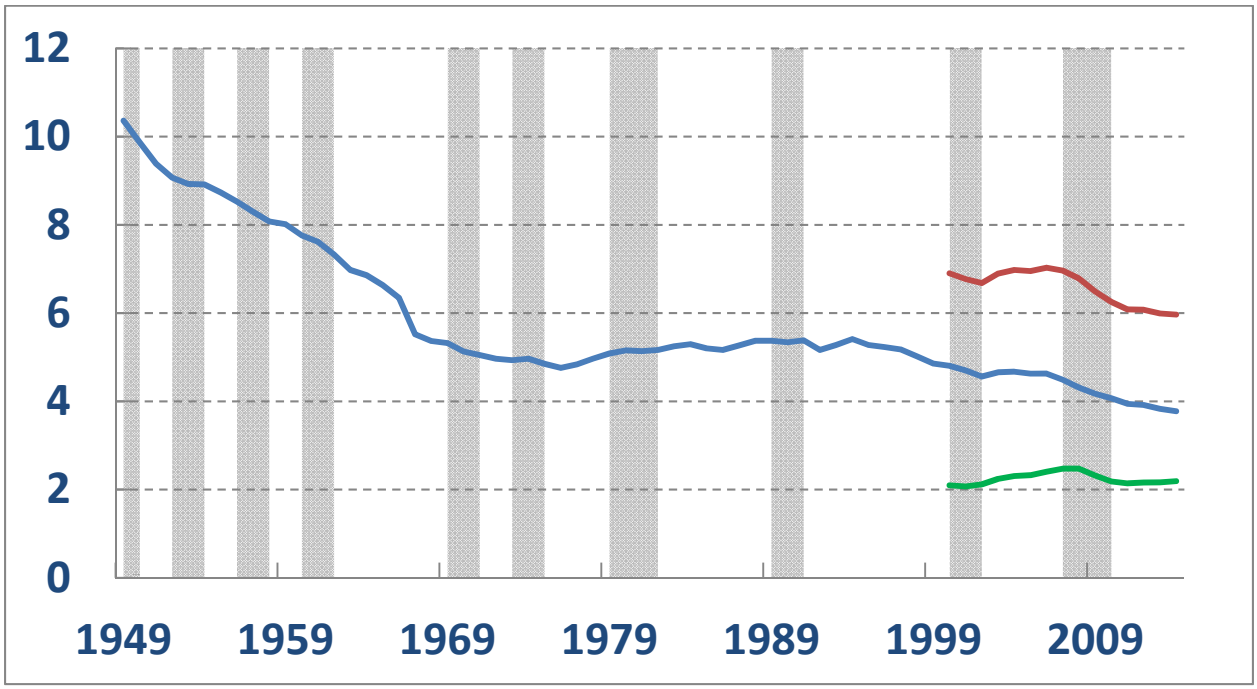
Figure 1

Self-employment as a Percentage of the Civilian Non-institutionalized Labor Force



Source: Created from data from the Bureau of Labor Statistics

Figure 2

Cyclical Demand Variation at the Industry Level

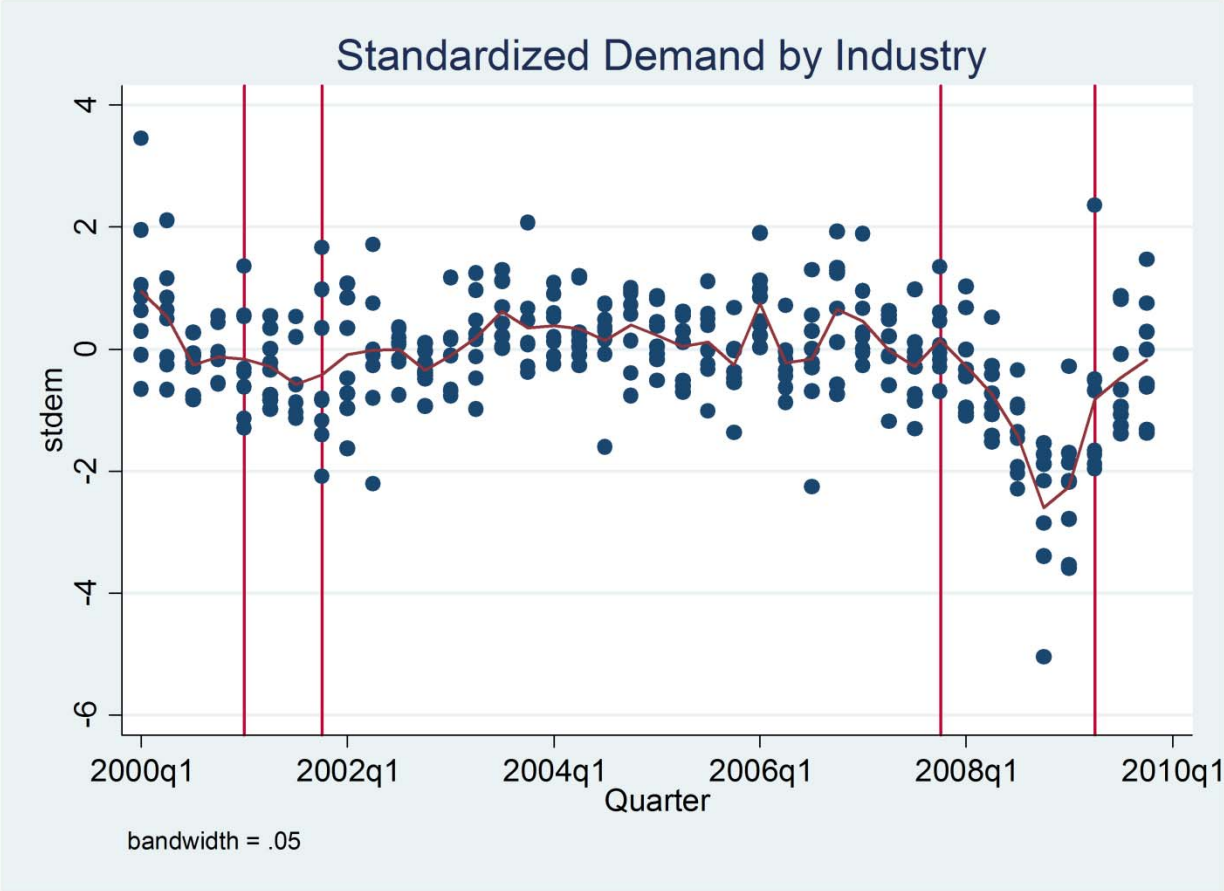


Figure 3

Baseline Transition Rates to and from Incorporated Self-Employment

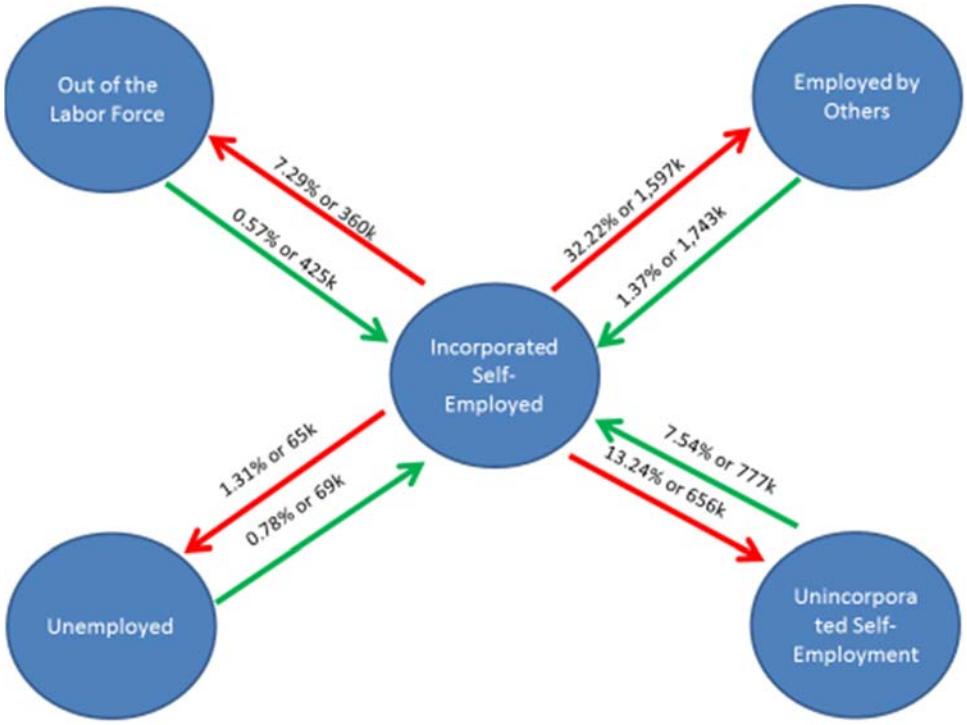


Figure 4: Components of Predicted Flows

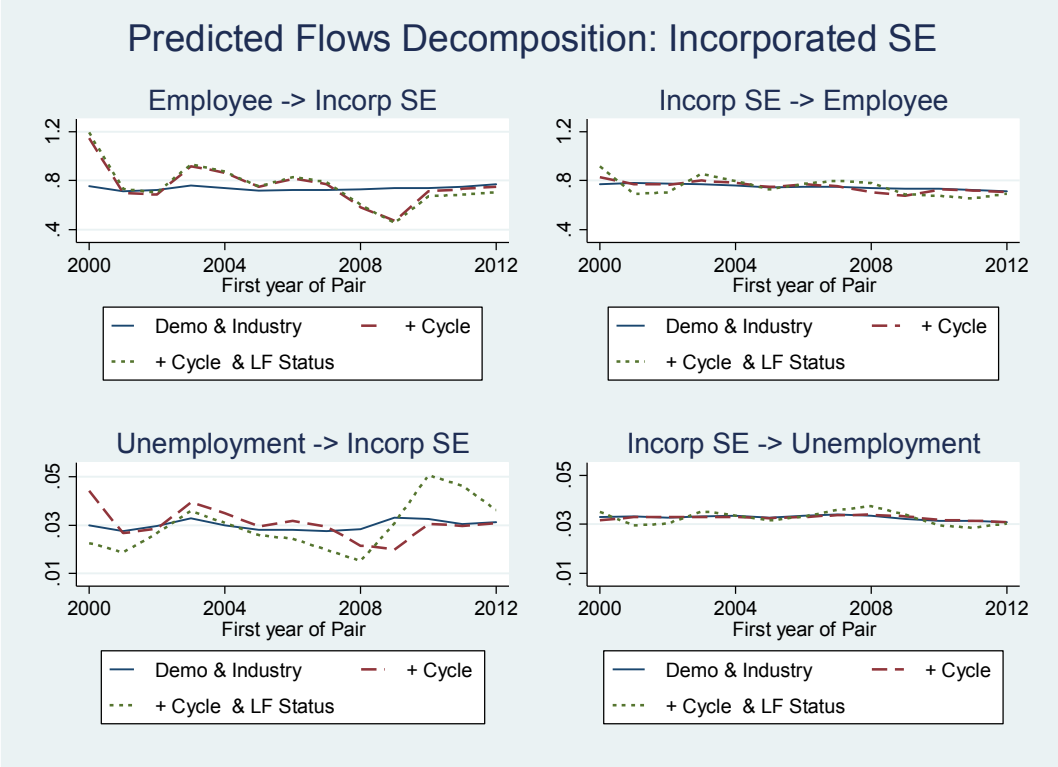


Figure 5: Decomposition of Predicted Incorporated Self-employment Flows

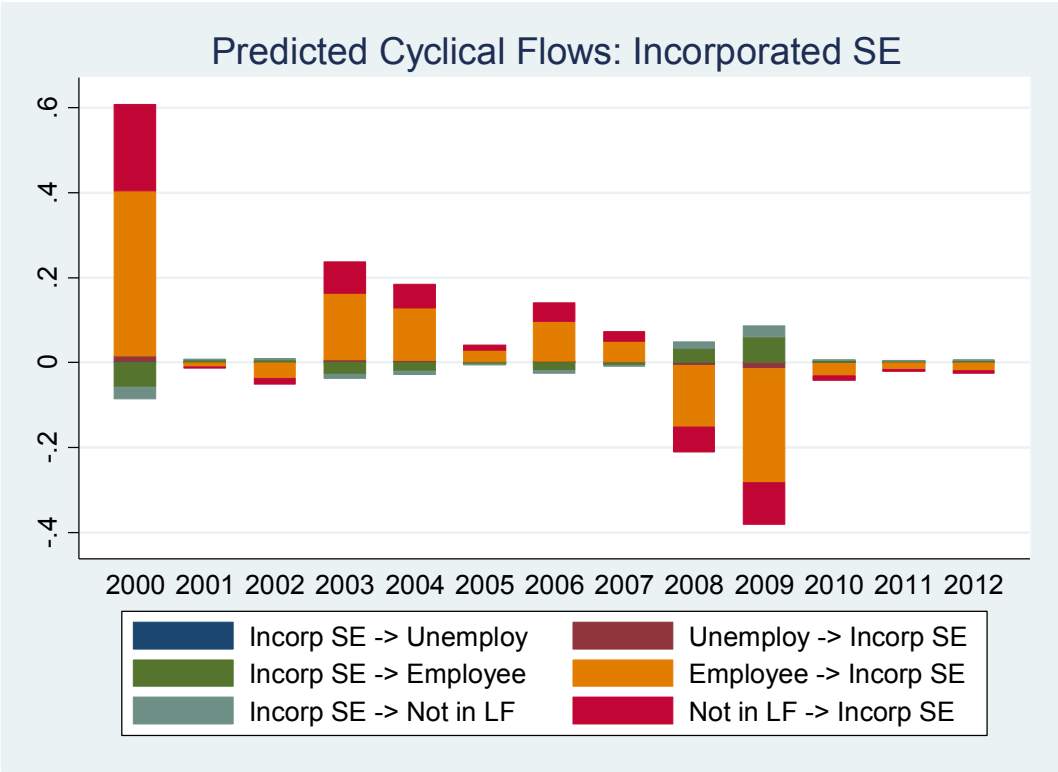


Figure 6: Unincorporated Self-Employment Flows

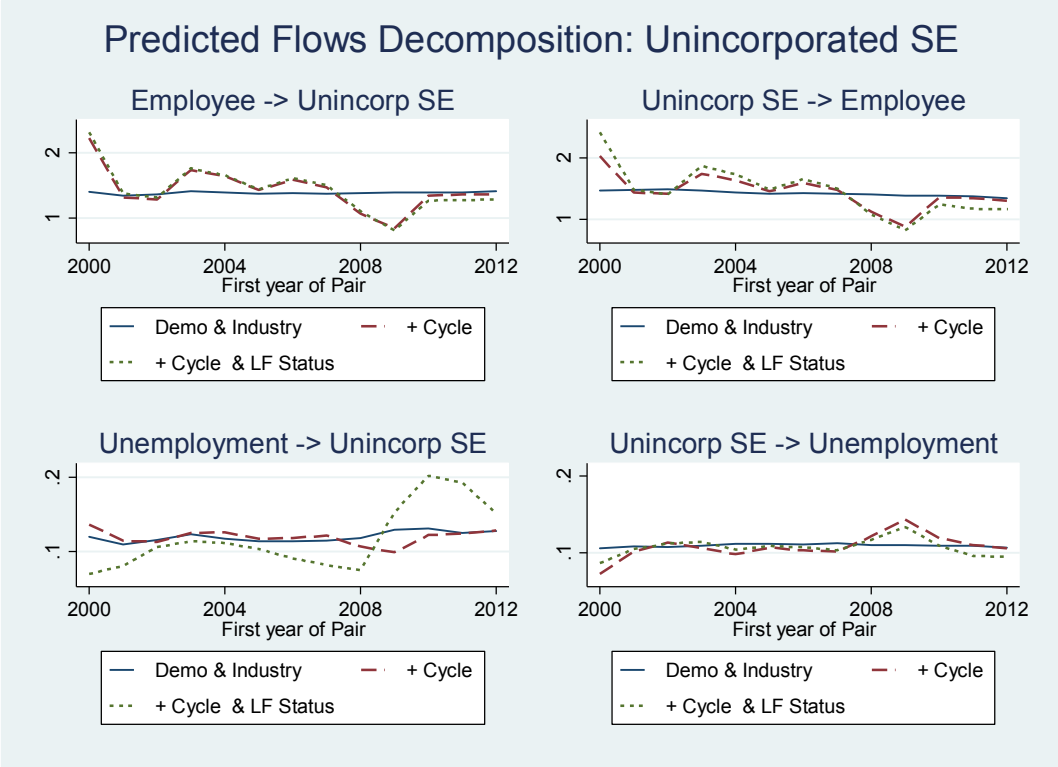


Figure 7: Decomposition of Predicted Incorporated Self-employment Flows

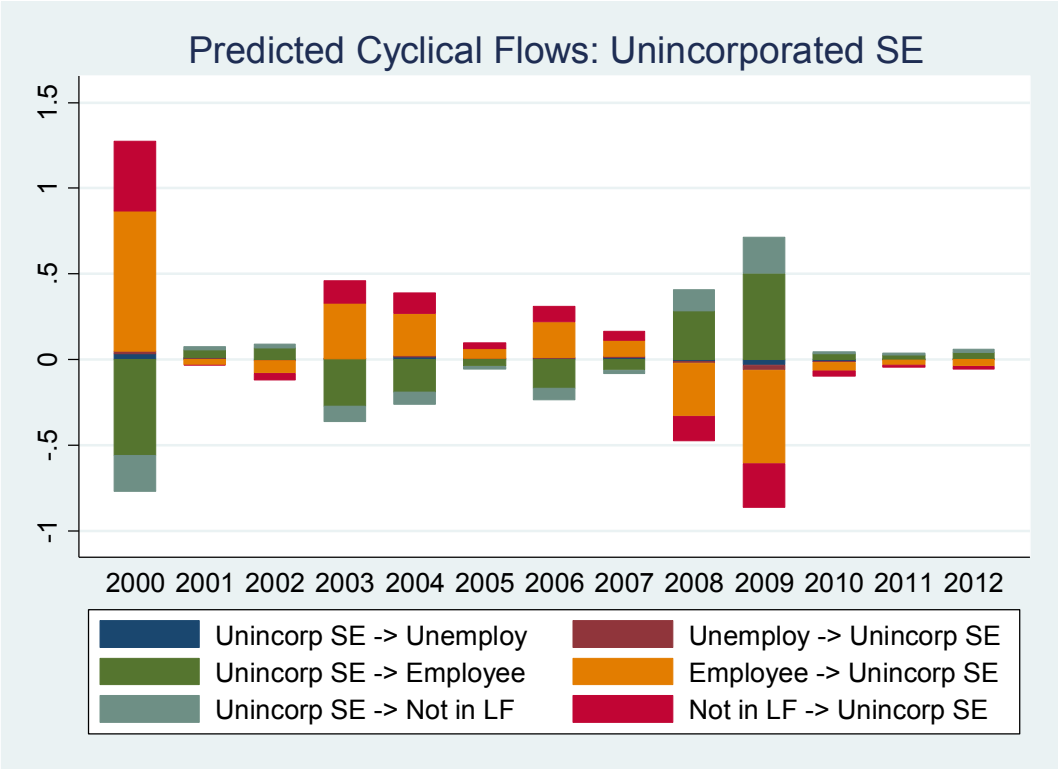


Figure 8: Decomposition of Flows between Self-Employment States

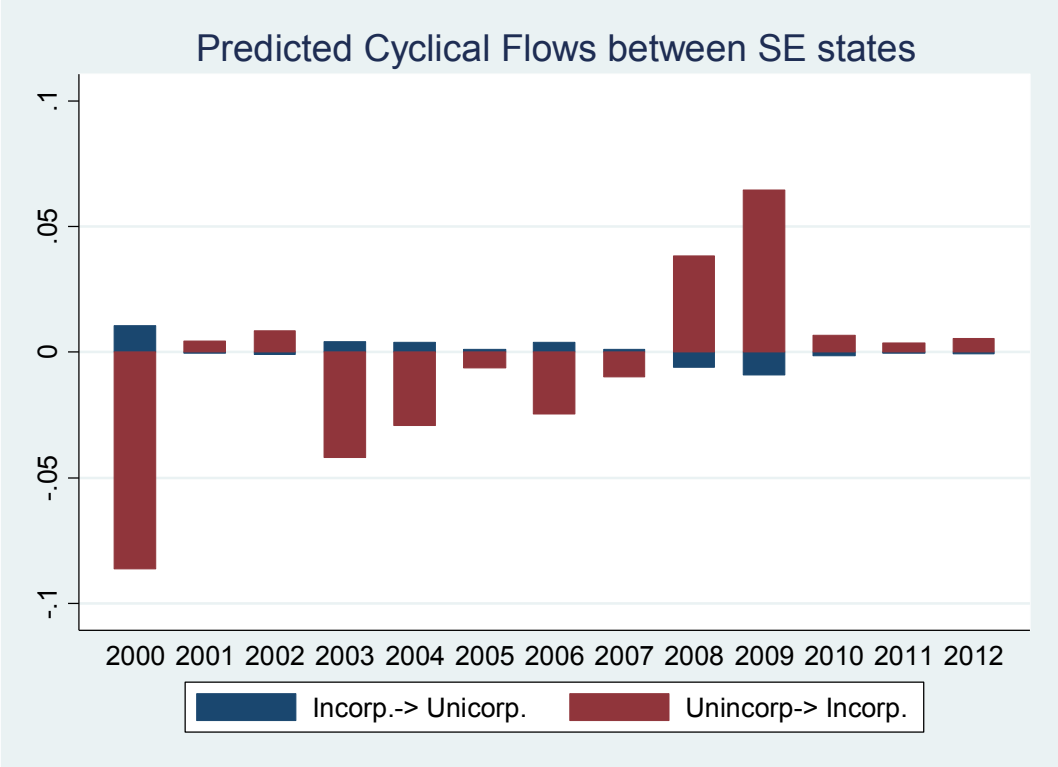


Table 1

Population Shares by Labor Force Status

	Incorp. SE	Unincorp. SE	Employee	Unemployed	Not in Labor Force
Ages: 20-29	0.9%	3.2%	13.5%	30.0%	18.9%
30-39	11.0%	14.3%	22.4%	21.6%	8.4%
40-49	26.7%	23.9%	24.3%	18.4%	8.6%
50-59	31.5%	27.8%	23.4%	17.1%	9.3%
60-69	21.8%	20.7%	13.2%	10.0%	14.4%
70-79	8.1%	10.1%	3.2%	2.8%	40.3%
HS Dropout	4.2%	10.9%	10.5%	23.3%	29.0%
HS Graduate	40.9%	49.0%	48.4%	53.6%	48.9%
Assoc. Deg.	8.0%	8.7%	9.7%	7.1%	5.6%
Bach. Degree	28.6%	19.6%	20.7%	11.9%	11.2%
Grad. Degree	18.4%	11.8%	10.6%	4.1%	5.4%
White, non-Hispanic	85.7%	80.9%	72.4%	57.7%	71.9%
Black	3.3%	4.7%	9.5%	18.7%	10.8%
Asian	4.2%	3.3%	3.7%	3.4%	3.7%
Other Race	0.8%	1.5%	1.6%	2.7%	1.7%
Hispanic	5.9%	9.5%	12.8%	17.5%	11.8%
Female	27.0%	38.1%	48.7%	44.6%	62.8%
Management/Professional	56.1%	40.1%	38.3%	20.0%	
Other Occupations	16.2%	29.8%	25.3%	44.6%	
Service Occupations	3.4%	11.3%	10.9%	12.2%	
Sales	24.3%	18.8%	25.5%	23.2%	
Agric. & Mining	3.7%	10.3%	2.3%	2.4%	
Construction	15.7%	16.2%	5.8%	11.2%	
Manufacturing	6.8%	3.2%	13.1%	12.3%	
Trade	21.5%	15.6%	20.7%	19.3%	
FIRE	9.4%	7.6%	6.9%	4.5%	
PBS	21.0%	19.4%	10.6%	13.2%	
Educ & Health	10.8%	12.9%	24.3%	12.1%	
Other Industries	11.0%	14.8%	16.2%	25.0%	

Table 2

Marginal Effects on Transitions to and from Incorporated Self-Employment

	Employee --> Incorp. SE	Unemploy --> Incorp. SE	NILF --> Incorp. SE	Incorp. SE --> Employee	Incorp. SE --> Unemployed	Incorp. SE --> NILF
Baseline:	**0.014**	**0.008**	**0.006**	**0.018**	**0.013**	**0.073**
Ages: 20-29	**-0.035**	**-0.027**	**-0.023**	**0.124**	0.000	**0.071**
30-39	**-0.011**	**-0.008**	**-0.006**	**0.052**	0.002	**0.015**
50-59	**0.002**	0.000	0.000	-0.039	**-0.003**	0.002
60-69	**0.002**	**-0.003**	**-0.003**	**-0.085**	**-0.006**	**0.041**
70-79	**0.005**	**-0.004**	**-0.008**	**-0.173**	**-0.016**	**0.122**
HS Dropout	**-0.006**	**-0.003**	**-0.007**	**-0.010**	**0.003**	**0.016**
Assoc. Deg.	0.001	**0.002**	**0.001**	**-0.019**	-0.003	**-0.010**
Bach. Degree	**0.006**	**0.004**	**0.006**	**0.002**	-0.002	**-0.007**
Grad. Degree	**0.010**	**0.009**	**0.006**	**0.002**	**-0.005**	**-0.018**
Black	**-0.019**	**-0.007**	**-0.013**	**0.019**	**0.011**	0.001
Asian	**-0.003**	-0.001	-0.002	-0.025	0.000	**-0.022**
Other Race	**-0.013**	**-0.010**	**-0.013**	**-0.103**	0.006	**-0.038**
Hispanic	**-0.009**	**-0.006**	**-0.005**	**0.039**	**0.005**	**-0.001**
Female	**-0.017**	**-0.009**	**-0.009**	**0.017**	-0.002	**0.059**
Agric. & Mining	**0.005**	0.003		**-0.034**	0.000	**0.018**
Construction	**0.014**	**0.006**		-0.008	**0.006**	0.000
Manufacturing	0.001	-0.001		**0.046**	0.002	**0.014**
Trade	**0.004**	0.001		0.015	0.003	**0.012**
FIRE	**0.005**	0.001		**0.033**	0.003	**0.016**
PBS	**0.006**	**0.004**		0.009	0.003	-0.003
Educ & Health	**-0.005**	**-0.007**		**0.048**	0.000	0.006
Management	**0.011**	**0.007**		0.010	-0.001	-0.001
Service Occ.	**0.005**	0.004		-0.015	0.000	0.002
Sales	**0.010**	**0.006**		**0.033**	0.006	0.005

Table 3

Marginal Effects of Demand Conditions on Transitions to and from Self-Employment

From Incorporated Self-Employment to:		Marginal Effect	z score
Unemployment			
	Baseline Effect	**0.0131**	
	Sum of Demand Coefficients	**-0.0017**	**-2.1**
Wage Employment			
	Baseline Effect	**0.3222**	
	Sum of Demand Coefficients	**0.0742**	**4.1**
Not in the Labor Force			
	Baseline Effect	**0.0729**	
	Sum of Demand Coefficients	**0.0377**	**4.1**

To Incorporated Self-Employment From:		Marginal Effect	z score
Unemployment			
	Baseline Effect	**0.0078**	
	Sum of Demand Coefficients	**0.0123**	**2.0**
Wage Employment			
	Baseline Effect	**0.0137**	
	Sum of Demand Coefficients	**0.0227**	**4.4**
Not in the Labor Force			
	Baseline Effect	**0.0057**	
	Sum of Demand Coefficients	**0.0214**	**3.6**

Table 4

Marginal Effects on Transitions to and from Unincorporated Self-Employment

	Employee --> Unincorp. SE	Unemploy --> Unincorp. SE	NILF --> Unincorp. SE	Unincorp. SE --> Employee	Unincorp. SE --> Unemployed	Unincorp. SE --> NILF
Baseline:	**0.026**	**0.031**	**0.017**	**0.018**	**0.023**	**0.466**
Ages: 20-29	**-0.039**	**-0.044**	**-0.040**	**0.130**	**0.010**	**-0.214**
30-39	**-0.010**	**-0.010**	**-0.005**	**0.047**	0.001	**-0.058**
50-59	0.001	0.003	-0.002	**-0.044**	-0.001	**0.038**
60-69	0.000	0.000	**-0.007**	**-0.131**	**-0.005**	**0.055**
70-79	**0.006**	-0.002	**-0.017**	**-0.273**	**-0.014**	**0.070**
HS Dropout	**0.004**	-0.001	**-0.004**	**0.004**	**0.004**	**-0.026**
Assoc. Deg.	-0.001	**0.005**	**0.004**	**-0.005**	**-0.004**	**0.012**
Bach. Degree	**0.003**	**0.006**	**0.006**	**0.005**	-0.001	0.000
Grad. Degree	**0.005**	**0.011**	**0.008**	**0.018**	**-0.006**	-0.007
Black	**-0.026**	**-0.015**	**-0.021**	**0.014**	**0.015**	**-0.049**
Asian	**-0.007**	**-0.013**	-0.012	**-0.022**	0.002	0.036
Other Race	**-0.019**	**-0.012**	**-0.012**	**-0.098**	**0.006**	**0.076**
Hispanic	**-0.003**	**0.005**	**-0.005**	**0.050**	**0.004**	**-0.032**
Female	**-0.011**	**-0.018**	**-0.014**	**-0.006**	**-0.002**	**-0.039**
Agric. & Mining	**0.009**	**0.008**		**-0.041**	**-0.007**	**0.029**
Construction	**0.014**	**0.018**		**-0.009**	**0.003**	-0.008
Manufacturing	**-0.011**	**-0.013**		**0.003**	**-0.003**	**-0.031**
Trade	**-0.004**	-0.001		**0.036**	-0.002	**-0.053**
FIRE	**0.003**	0.003		**0.093**	**-0.003**	**-0.094**
PBS	0.001	0.004		**0.036**	0.000	**-0.041**
Educ & Health	**-0.008**	**-0.005**		**0.054**	0.001	**-0.066**
Management	**-0.005**	**0.011**		**-0.041**	**-0.003**	**0.025**
Service Occ.	0.001	0.004		**-0.020**	**-0.006**	**0.029**
Sales	**-0.005**	-0.002		**-0.009**	**-0.003**	**-0.016**

Table 5

Marginal Effects of Demand Conditions on Transitions to and from Unincorporated Self-Employment

From Unincorporated Self-Employment to:		Marginal Effect	z score
Unemployment			
	Baseline Effect	**0.0229**	
	Sum of Demand Coefficients	**-0.0206**	**-8.9**
Wage Employment			
	Baseline Effect	**0.3133**	
	Sum of Demand Coefficients	**0.3511**	**5.1**
Not in the Labor Force			
	Baseline Effect	**0.4655**	
	Sum of Demand Coefficients	**-0.4125**	**-4.9**

To Unincorporated Self-Employment From:		Marginal Effect	z score
Unemployment			
	Baseline Effect	**0.0307**	
	Sum of Demand Coefficients	0.0115	1.7
Wage Employment			
	Baseline Effect	**0.0258**	
	Sum of Demand Coefficients	**0.0495**	**3.9**
Not in the Labor Force			
	Baseline Effect	**0.0173**	
	Sum of Demand Coefficients	**0.0382**	**5.6**

Table 6

Marginal Effects on Transitions to and from Unincorporated Self-Employment

	Incorp. SE --> Unincorp. SE	Unincorp. SE --> Incorp. SE
Baseline:	**0.132**	**0.075**
Ages: 20-29	**0.030**	**-0.063**
30-39	0.004	**-0.016**
50-59	-0.004	-0.002
60-69	0.000	**-0.007**
70-79	**0.011**	**-0.016**
HS Dropout	**0.032**	**-0.028**
Assoc. Deg.	-0.003	**0.008**
Bach. Degree	**-0.013**	**0.014**
Grad. Degree	**-0.015**	**0.026**
Black	**0.033**	0.001
Asian	**0.019**	**0.025**
Other Race	**0.029**	0.005
Hispanic	**0.021**	**-0.015**
Female	**-0.008**	**-0.038**
Agric. & Mining	**0.032**	**-0.022**
Construction	**-0.018**	**0.011**
Manufacturing	**-0.050**	**0.022**
Trade	**-0.014**	**0.008**
FIRE	0.005	0.005
PBS	-0.005	**0.005**
Educ & Health	-0.002	**-0.012**
Management	**-0.036**	**0.030**
Service Occ.	**0.017**	0.007
Sales	**-0.040**	**0.024**

Table 7

Marginal Effects of Demand Conditions on Transitions to and from Unincorporated Self-Employment

		Marginal Effect	z score
Incorporated SE to Unincorporated SE	Baseline Effect	**0.1324**	
	Sum of Demand Coefficients	**-0.0154**	**-3.4**
Unincorporated SE to Incorporated SE	Baseline Effect	**0.0754**	
	Sum of Demand Coefficients	**-0.0590**	**-4.3**