PATHWAYS TO RETIREMENT THROUGH SELF-EMPLOYMENT

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ABSTRACT

We examine the role of self-employment in retirement transitions using a panel of administrative tax data. We find that the hazard of self-employment increases at popular retirement ages associated with Social Security eligibility, particularly for those with greater retirement wealth. Late-career transitions to self-employment are associated with a larger drop in income than similar mid-career transitions. Data from the Health and Retirement Study suggest that hours worked also fall upon switching to self-employment. These results suggest that self-employment at older ages may serve as a "bridge job," allowing workers to gradually reduce hours and earnings along the pathway to retirement.

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1. Introduction

With the finances of Social Security and Medicare under pressure from an aging population and health care cost growth, the ability of these programs to provide retirement security has become an important policy concern. Fiscal pressures on these programs come in part from the fact that life expectancy has increased dramatically over the past several decades, but working lives have not kept pace. Thus, in addition to shoring up the finances of entitlement programs for retirees, policy makers have also expressed interest in facilitating longer working lives. Longer careers can improve retirement security by reducing the amount of private saving needed to achieve a given standard of living in retirement, as well as by reducing financial pressure on government programs.

Evaluating proposals to extend working lives requires an understanding of employment and income dynamics at older ages. Numerous studies have documented that retirement often does not involve an abrupt stopping of work. Many workers take "bridge jobs" (whether self-employment or part-time wage jobs) that enable them to slowly reduce hours or return to the labor force after a period of retirement (e.g., Ruhm 1990; Maestas 2010; Cahill, Giandrea, and Quinn 2011; Kerr and Armstrong-Stassen 2011). We contribute to the understanding of employment and income dynamics at older ages by examining the role that self-employment plays in the transition to retirement. Specifically, we investigate the extent to which transitions to self-employment increase at popular retirement ages associated with Social Security eligibility, as well as the extent to which self-employment income replaces income from wage-employment. Studying the role of flexible self-employment in transitions to retirement is particularly important considering its increasing availability though "gig economy" jobs, such as ride sharing (see, e.g., Jackson, Looney, and Ramnath 2017).

Previous research shows that self-employment is an important part of labor force dynamics at older ages because wage earners become more likely to switch to self-employment as they age (Giandrea, Cahill, and Quinn 2008; Cahill, Giandrea, and Quinn 2013; Fuchs 1982; Zissimopoulos, Maestas, and Karoly 2007). Wealth, liquidity, and access to credit appear to be important determinants of these self-employment transitions for older workers (Zissimopoulos and Karoly 2009; Zissimopoulos, Karoly, and Gu 2009; Bruce, Holtz-Eakin, and Quinn 2000). Being unemployed increases the probability of becoming self-employed (Biehl 2014). Job characteristics and personality traits play a role too (Angrisani et al. 2013; Zissimopoulos and Karoly 2009; Kerr and Armstrong-Stassen 2011). The evidence on the role of health status (Zissimopoulos and Karoly 2007; Giandria, Cahill, and Quinn 2008; Cahill, Giandrea, and Quinn 2013; Fuchs 1982) and portable health insurance (Bruce, Holtz-Eakin, and Quinn 2000; Zissimopoulos and Karoly 2007; Boyle and Lahey 2010; Fairlie, Kapur, and Gates 2011; Heim 2015) is more mixed. Several studies have also documented gender and other demographic differences both in the probability of transitioning to self-employment and in the determinants of self-employment (Zissimopoulos and Karoly 2007; Bruce, Holtz-Eakin, and Quinn 2000; Kerr and Armstrong-Stassen 2011; Lusardi, Christelis, and Scheresberg 2016).

We add to this literature by using a rich dataset based on tax returns to examine the role that self-employment plays along the pathway to retirement. We know that Social Security eligibility often triggers transitions to retirement. Thus, we begin by examining the impact of Social Security and private pension receipt on self-employment transitions utilizing both administrative tax return data and the Health and Retirement Study, a panel survey of the U.S. population over the age of 50. Because Social Security and pension receipt may be determined endogenously with labor-force transitions, we instrument for them using age-based eligibility

thresholds. Social Security or pension receipt may increase the hazard of self-employment by providing the liquidity needed to start a business or the financial security needed to induce risk-taking. For example, Coile, Duggan, and Guo (2016) show that the increase in income from receipt of military disability benefits causes veterans to switch from wage employment to self-employment. Zissimopoulos and Karoly (2009) show that pension cash-outs and other shocks to liquid wealth are associated with switches to self-employment. Alternatively, a switch to self-employment may be part of the retirement process, and Social Security or pension receipt (triggered by reaching eligibility thresholds) may signal the start of that process. For example, Kerr and Armstrong-Stassen (2011) examine the role of both self-employment and part time wage employment as bridge jobs that allows workers to reduce hours and effort gradually. Zissimopoulos and Karoly (2007) have argued that self-employed older workers are more likely to transition to part-time work, possibly because of the flexibility that self-employment provides. Fuchs (1982) and Quinn (1980) show that self-employed older workers tend to work longer than wage and salary workers in part because they reduce their working hours rather than stopping work.

In both of our datasets, we find that Social Security receipt, instrumented by reaching early or full retirement age, increases the probability of transitioning from wage-employment to self-employment. This effect is after controlling for a nonlinear trend in age to account for continuous changes in the hazard of self-employment as individuals age. It is equally present for those with employment-dependent health insurance and those without, suggesting that it is not driven by Medicare eligibility.[1] The reverse, however, is not true: Social Security receipt does

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[1] These results contrast with Fairlie, Kapur, and Gates (2011), who find an increase in business ownership in the few months after turning 65 relative to the few months before turning 65. They attribute this change to the availability of Medicare. There are a few reasons why our findings differ. First, Fairlie, Kapur, and Gates focus on business

not increase the probability of transitioning from self-employment to wage employment.

Transitions to self-employment are particularly responsive to Social Security claiming at full

retirement age. Social Security-induced transitions to self-employment are associated with a

switch in occupation, suggesting that those who transition to self-employment are not simply

going back to work in their former occupations as consultants. We also find that Social Security-

driven transitions to retirement are more common among those with higher retirement wealth,

suggesting that these transitions are not driven by the availability of liquidity. On the other hand,

private pension receipt does not have a statistically significant impact on transitions between

wage employment and self-employment.

To further explore the mechanisms behind this relationship, we use the tax return data to

examine the impact of switching to self-employment on the income paths of older workers

relative to younger ones. To our knowledge, no other studies have examined this relationship.[2]

We find that late-career transitions from wage employment to self-employment are associated

with a substantially larger drop in income than mid-career transitions from wage employment to

self-employment. For younger wage earners who become self-employed, income increases with

the duration of self-employment; however, it continues to fall for older wage earners. This result

is consistent with the role of self-employment as a flexible bridge job or a form of partial

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ownership, which may be significantly narrower than our definition of self-employment. Second, they restrict attention to individuals working at least 15 hours per week for at least 20 weeks per year, defining all other individuals as not working. They also focus on transitions that occur immediately after turning 65, while our transitions occur over a longer period.

[2] Other studies have examined the dynamics of income for wage earners versus the self-employed, but do not focus on older workers and the role that self-employment plays in generating income during retirement transitions. Generally, self-employed workers tend to earn less than wage earners, to experience slower income growth, to work longer hours, and to face greater earnings risk. See Åstebro and Chen (2014) for a review, and for evidence that underreporting may more than explain the income differential. A recent paper by Brady et al. (2017) uses administrative tax return data to study the impact of retirement on total income, including income from employment, Social Security, and pensions.

retirement. It suggests that Social Security induces transitions to self-employment because it signals the start of the retirement process.

The remainder of the paper is organized as follows. Section 2 describes our data and methods. Section 3 presents our results. Section 4 concludes.

2. Data and Methods

a. Data

We use administrative tax return data for the 1940, 1945, and 1965 cohorts from 1999 to 2013. We observe the 1940 birth cohort from ages 59 through 73 and the 1945 birth cohort from ages 54 through 68. The 1965 birth cohort, which we use as a younger comparison group, is observed from ages 34 through 48. We select a 10-percent sample of tax returns from each cohort. We drop individuals who died prior to our sample period, who never report having self-employment income, or who were never issued a Form W-2. We obtain information about wage income from form W-2; since this form is an information return, we can include nonfilers in our sample. We obtain information about net self-employment income from Schedule SE. Since Schedule SE is filed by self-employed individuals with their tax returns, it is not available for nonfilers. However, this is unlikely to result in substantial selection bias because self-employment income is subject to a much lower filing threshold than wage income.[3] We can determine whether an individual has claimed Social Security based on the presence of a 1099-SSA, an information return that reports Social Security income. We define an individual's Social Security claiming age to be the year in which they first begin to receive income reported on a

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[3] In 2016, individuals with net earnings of $400 or more from self-employment had to file schedule SE. Self-employment income is also typically reported as business income on Schedule C; however, due to data limitations in most years of our data, it is difficult to determine whether the income was earned by the primary filer or spouse, particularly when losses are reported.

1099-SSA, excluding income paid from the disability trust fund. We obtain Individual

Retirement Account (IRA) balances from form 5498.[4] All monetary amounts are adjusted for

inflation and expressed in 2010 dollars.

In the tax return data, we define an individual as a wage earner if wages make up 50

percent or more of total earnings (wages plus self-employment income), and if total earnings are

greater than $3,000 in 2010 dollars. We define an individual as self-employed if self-

employment income makes up more than 50 percent of total earnings, and if total earnings are

greater than $3,000 in 2010 dollars. Finally, we define an individual as not working if total

earnings are less than $3,000 in 2010 dollars. One shortcoming of using Schedule SE income is

that it reports taxable, net self-employment income; thus, our definition of self-employed would

exclude self-employed individuals who made profits less than the $3,000 threshold (or losses)

despite having significant revenue.

We supplement our analysis using data from the Health and Retirement Study (HRS), a

panel survey intended to track the U.S. population over age 50. The survey began in 1992 with a

cohort of individuals born between 1931 and 1941, and several new cohorts have been added

periodically to keep the sample representative of the target population. Interviews take place

every two years, and the most recent wave available is 2014. We define an individual's baseline

year as the year in which their cohort first entered the survey.[5]

The HRS includes an indicator for whether an individual is doing any work for pay. It

also includes an indicator for whether an individual's main job is self-employment. We classify

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[4] While individuals only receive form 5498 when they make IRA contributions, the form is filed with the Internal Revenue Service each year and is therefore available for all individuals who have IRAs.

[5] We use data from cohorts entering the sample in 1992 (born 1931-1941), 1998 (born 1924-1930), 2004 (born 1948-1953), and 2010 (born 1954-1959). We drop an older cohort (individuals born before 1924) that was part of the original AHEAD survey and entered the sample in 1993. We primarily use the RAND version of the HRS, a cleaned dataset that includes a limited number of variables. However, we merge in data on private pension eligibility ages from the raw HRS.

individuals as either employees (working for pay and not self-employed), self-employed (working for pay and self-employed), or not working based on these self-reports. For individuals who are currently working, the HRS includes information about the usual number of hours worked per week and the usual number of weeks worked per year at both their main job and second job (if any).[6] It also includes an hourly wage, which is calculated based on these variables and self-reported earnings on all jobs. Self-reported earnings include both wages and net earnings from self-employment. We assume the hourly wage is zero for individuals currently not working.[7] We calculate annual earnings as hourly wage multiplied by usual hours worked per week at all jobs multiplied by usual weeks worked per year at all jobs. Note that, consistent with the tax data, our HRS earnings measure includes any earnings from self-employment for people who are wage earners at their main job and any earnings from wage employment for people who are self-employed at their main job. Net earnings from self-employment in the HRS also do not appear to be negative, suggesting that losses are not included. In contrast to the tax data, however, individuals in the HRS are classified as self-employed not based on the fraction of their income from self-employment, but based on whether they report that their main job is self-employment. We construct retirement wealth for each individual as the sum of household IRA balances and the individual's defined contribution balances from the current job. Just as in the tax return data, all monetary amounts are adjusted for inflation and expressed in 2010 dollars.

In their baseline wave, individuals report information on up to three or four (depending on the wave) pension plans sponsored by their current employer. For defined benefit plans,

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[6] A subset of individuals was not asked about second jobs in wave 2. We assume that these individuals did not have second jobs (i.e., we set hours and weeks worked at a second job to zero).

[7] RAND imputes the hourly wage for individuals who are unemployed. Since we are concerned with actual earnings, rather than potential earnings, we replace these imputed values with zeros.

individuals report early and full eligibility ages.[8] We create early and full retirement eligibility indicators for whether an individual has a defined benefit plan and has reached the early and full retirement ages, respectively, for any of the defined benefit plans they reported. We also create an indicator for whether an individual had a defined contribution plan or Individual Retirement Account (IRA)[9] in their baseline wave and has reached age 59.5, the age at which penalty-free withdrawals may be made from these accounts. In each interview, individuals report whether they are currently receiving any income from employer-sponsored pensions. We use this information to create an indicator for private pension claiming in each wave. For individuals who have claimed Social Security in the past, the HRS includes information about their Social Security claiming age.

We drop individuals who were not present in their baseline wave, individuals whose employment status in their baseline wave is unknown, observations with a currently missing employment status, observations with missing Social Security or pension claiming status, observations with missing age, and observations with zero sampling weight.

b. Transitions

We begin by examining the impact of claiming Social Security and private pensions on transitions to retirement and self-employment. The dependent variable in our working-to-not-working transition model takes on a value of 1 for individuals who were working (either self-employed or wage earner) in the previous period and are currently not working. It takes on a

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[8] If an individual reports an early eligibility age that is greater than the full eligibility age, we set the early eligibility age equal to the full eligibility age. If the early eligibility age is missing, we also set the early eligibility age equal to the full eligibility age.

[9] In the RAND dataset, IRA balances are available at the household level only. We code an individual as having an IRA if the household has a nonzero IRA balance in the baseline wave.

value of zero for individuals who were working (either self-employed or wage earner) in the previous period and continue to be employed in the current period (again either self-employed or wage earner). It is missing for all other individuals. Similarly, the dependent variable in our self-employment transition model takes on a value of 1 for individuals who were wage earners in the previous period and are self-employed in the current period. It takes on a value of zero for individuals who were wage earners in the previous period and continue to be wage earners in the current period. It is missing for all other individuals. That is, we model the hazard of stopping work for working individuals, as well as the hazard of self-employment for wage earners.

In the HRS, we also observe individuals' occupation in each wave.[10] Thus, we can also create two separate self-employment transition indicators. The first takes on the value of 1 if a wage earner in the previous wave switches to self-employment in a new occupation; it takes on a value of zero if a wage-earner in the previous wave either continues as a wage-earner or switches to self-employment in the same occupation. The second takes on the value of 1 if a wage earner in the previous wave switches to self-employment in the same occupation; it takes on a value of zero if a wage-earner in the previous wave either continues as a wage-earner or switches to self-employment in a different occupation. Both indicators are missing in all other cases.

Social Security and private pension claiming are likely jointly determined with retirement. Thus, we instrument for these variables using age-based eligibility thresholds. Since the tax return data have limited information on private pensions, we restrict attention to Social Security claiming. We also restrict attention to the 1940 and 1945 birth cohorts, as the 1965 birth cohort is not eligible for Social Security retirement benefits during the sample period. We

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[10] We use the broad occupational categories in the RAND HRS, and our regressions exclude observations with missing occupation in either the current or previous wave. In some waves, there is a special missing value code for "other Census occupation." We recode this as a separate occupational category.

instrument for Social Security claiming using indicators for whether an individual has crossed the eligibility thresholds of age 62 (at which point a reduced retirement benefit can be claimed) and full retirement age (65.5 for the 1940 cohort and 66 for the 1945 cohort), both of which are popular claiming ages. Because the probability of switching to self-employment or retiring may vary with age, we control for a quadratic age trend. The coefficient on Social Security claiming then measures any discontinuous change in the hazard of self-employment or retirement that occurs upon claiming Social Security at the key eligibility ages. In all regressions, standard errors are clustered by individual.

In the HRS, we include both Social Security and private pension claiming as independent variables. We instrument for them using eligibility indicators for defined benefit and defined contribution pensions reported in the baseline wave, and indicators for reaching Social Security early or full retirement age.[11] We also include a quadratic age trend and wave dummies. Standard errors are clustered by individual.

c. Earnings

There are several reasons why claiming Social Security might induce switches to self-employment. Social Security receipt might provide the liquidity needed to finance a new business or an outside income source that induces risk-taking. Alternatively, self-employment may be part of the path to retirement, allowing individuals to reduce hours and effort slowly or pursue hobbies. Claiming Social Security may indicate the start of that path to retirement. To distinguish between these two explanations, we examine how earnings and hours worked change upon transitioning to self-employment.

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[11] Social Security full retirement ages are coded based on cohort, as specified in the following table: https://www.ssa.gov/planners/retire/retirechart.html.

The dependent variable in the earnings regressions is total earnings, whether from a job or from self-employment. In the HRS data, we can use weekly hours as a dependent variable as well. The key independent variables are indicators for being self-employed or not working in the current year or wave. In the tax data, we utilize the 1945 and 1965 birth cohorts. The tax data regressions also include year dummies, a dummy for the 1945 birth cohort, interactions between the 1945 birth cohort dummy and the work status indicators, interactions between the 1945 birth cohort dummy and the year dummies, and individual fixed effects. In the HRS data, we include wave dummies, age dummies, and individual fixed effects. We cluster standard errors at the individual level. We estimate these regressions for the full sample, as well as for the subset of individuals who start out as wage earners (i.e., in 1999 in the tax data and the baseline wave in the HRS). The latter set of regressions allows us to examine the impact of switching to self-employment for individuals who begin as wage earners. This is more relevant to the question of the role that self-employment may play as career employees transition to self-employment at older ages. In these regressions, we exclude 1999 (in the tax data) or the baseline wave (in the HRS data). The use of fixed effects means that we are estimating within-person changes from switches between wage-employment and self-employment. In the tax data, the year-by-cohort fixed interactions absorb the impact of aging on earnings for the 1945 birth cohort. That is, they allow for the fact that earnings may fall over time for the older group due to aging, regardless of employment type.

The goal of this exercise is to examine the impact of late-career transitions to self-employment on earnings and hours. However, it is possible that the self-employed differ from wage earners at any age in terms of their reported hours or earnings. For example, income underreporting is more common for self-employment income than for wage and salary income

(see e.g., Feldman and Slemrod 2007). Thus, a drop in reported income upon switching to self-employment may simply reflect underreporting. Alternatively, self-employed individuals may take a few years to become established in their business, suggesting that a drop in income during the first period of self-employment is to be expected regardless of age. Finally, macroeconomic factors may affect the relative earnings of the self-employed versus wage employees. In the tax data, the younger cohort can help us to control unobservable factors that affect the income of the self-employed versus wage employees at all ages. If both age groups face similar incentives to underreport, have similar experiences with becoming established in business, and are affected similarly by macroeconomic factors, we can examine the impact of switching to self-employment on income for the older versus the younger group. That is, the coefficient on the interaction term between the 1945 cohort dummy and the self-employment dummy tells us the additional change in income that results from a late-career (versus a mid-career) switch to self-employment. In both the tax data and the HRS data, we also estimate regressions in which we allow the income changes resulting from self-employment to vary depending on the number of consecutive years of self-employment. This allows us to determine how income evolves after a switch to self-employment.

3. Results

a. Transitions

Table 1 uses tax return data to show the 1-year, 2-year, and 4-year transition probabilities between self-employment, wage-employment, and non-work for the 1940, 1945, and 1965 cohorts over the entire 1999-2013 period. They suggest that around 1 percent of wage earners in each age group become self-employed each year. The fraction rises to around 2 percent over four

years. Table 2 does the same for the HRS data. Since interviews are conducted every other year, we only show the 2-year and 4-transition probabilities. These figures suggest that around 2 percent of wage earners transition to self-employment over two years, with that fraction rising to around 4 percent over four years. Most of the transition probabilities are similar for the older tax data cohorts and the HRS sample. The main difference is that self-employed people are more likely to transition to not working in the tax data relative to the HRS data. That difference likely arises from the $3,000 minimum income threshold we require to be defined as working in the tax data. If income fluctuates from year-to-year for the self-employed, individuals who temporarily fall below the threshold in the tax data may be classified as not working. But individuals in this situation may still identify their main job as self-employment in the HRS.

Figure 1 uses the tax data to show the hazards of self-employment each year for individuals who were wage earners in the previous year. These hazards are conditional on not stopping work. The two horizontal lines indicate the years that the older cohort turned 62 and 66 (the Social Security full retirement age). Figure 2 provides two-year self-employment hazard rates by age using the HRS data. The horizontal lines here indicate ages 62 and 65 (the Social Security full retirement age for almost half of the HRS sample). Both graphs show that the probability of switching from wage-employment to self-employment increases around the Social Security full retirement age. The tax data additionally show a spike in the hazard of self-employment soon after age 62. In the tax data, the increases in the hazard of self-employment at key Social Security ages are more pronounced when viewed relative to the younger cohort, whose hazard of self-employment has declined relatively steadily since 2007. These spikes suggest the possibility that Social Security receipt may induce self-employment by providing

outside income, or that individuals may use self-employment as a bridge job as they transition to retirement at key Social Security eligibility ages.

Figure 3 shows the hazard of stopping work each year for individuals who were wage earners and self-employed, respectively, in the previous year. Figure 4 does the same, by age, for the HRS data. Figure 3 suggests that retirement hazards for the older group (measured relative to the younger cohort's hazard of stopping work) are higher for wage earners before age 62. Both figures show that retirement hazards increase at ages 62 and normal retirement age, for both self-employed individuals and wage earners. In the HRS data, self-employed individuals appear to have a lower hazard of stopping work than wage earners, while the reverse is true in the tax data. One explanation for this finding might be our definition of not working. In the HRS data, an individual is not working if he or she reports not doing any work for pay. In the tax data, we use a threshold of $3,000 of earnings. It is possible that the net earnings of self-employed people are more volatile than those of wage earners, causing them to fall below $3,000 in net earnings in some years (and be classified as not working) even though they continue to work in self-employment.

Table 3 shows the impact of claiming Social Security on the probabilities of different labor market transitions. In all models, Social Security claiming is instrumented using indicators for reaching early and full eligibility ages. The first column shows that claiming Social Security is associated with a 0.5 percentage point increase in the hazard of switching from wage employment to self-employment, a 45 percent increase relative to the dependent variable mean of 1.1 percent (the fraction of wage-earners who switch to self-employment each year). The second column shows that the reverse is not true. Claiming Social Security is not associated with a change in the probability of switching from self-employment to wage employment. The last

two columns show that claiming Social Security at the two threshold ages is associated with an increase in the probability of stopping work for both wage earners and the self-employed. However, the association is stronger for wage-earners. The coefficients on the age trend show that the probability of switching to self-employment, as well as the probability of stopping work, increases at a decreasing rate with age. The age trend for switching from self-employment to wage employment is weaker (the coefficient on age is only significant at the 10 percent level) but follows a similar pattern.

Table 4 presents similar results for the HRS data. The first column shows that claiming Social Security is associated with a 1.67 percentage point increase in the hazard of self-employment over two years, a 60 percent increase relative to the dependent variable mean of 2.8 percent. However, claiming a private pension is not associated with a statistically significantly higher probability of switching to self-employment. The second column shows no statistically significant relationship (at the 5 percent level) between claiming Social Security or pensions and switching from self-employment to wage employment. The next two columns show that claiming Social Security is associated with switching to self-employment and switching occupation, rather than switching to self-employment within the same occupation. Private pension receipt also appears to be associated with becoming self-employed in a new occupation. These results suggest that Social Security-driven switches to self-employment are not likely to be individuals who return to work for former employers as consultants.[12] The last two columns show that Social Security and pension claiming are associated with stopping work, with a stronger impact for wage earners than self-employed. Just as in the tax data, the nonlinear age

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[12] However, we find no statistically significant relationship between Social Security claiming and becoming self-employed in a different industry.

trend suggests that the probability of switching to self-employment and the probability of retiring increase at a decreasing rate with age.

To further explore the results in Tables 3 and 4, we re-run the transition regressions separately with each of the Social Security eligibility instruments.[13] We also re-run the transition regressions for individuals in different retirement wealth categories. In the tax return data, these categories are zero IRA wealth, IRA wealth between $0 and $50,000, IRA wealth between $50,000 and $100,000, and IRA wealth about $100,000. In the HRS data, due to the smaller sample size, we break the sample into individuals with zero retirement wealth and individuals with positive retirement wealth. Retirement wealth is always measured in the current year or wave. Finally, since Social Security full retirement age is close to Medicare eligibility age, the increase in self-employment hazard around that age may also indicate the role that health insurance availability plays in transitions to self-employment.[14] To rule out the possibility that Medicare eligibility might be driving our results, we re-estimate the regressions in Table 4 for individuals who, in the baseline wave, either do not have employer-sponsored health insurance or have employer-sponsored health insurance that also covers retirees. The labor market decisions of this group should not be sensitive to the availability of Medicare, as they do not have health insurance that is tied to their employment.

Table 5 reports the results from these alternative specifications. The table reports only the coefficient on Social Security claiming, but all regressions still include controls for age and age squared, and for wave (in the HRS data). In the HRS regressions, private pension claiming (and the associated eligibility instruments) are included in the regressions that are broken down by

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[13] In the HRS version of these regressions, we exclude private pension eligibility and the pension eligibility instruments.

[14] See, e.g., Fairlie, Kapur, and Gates (2011), who investigate the availability of non-employer sponsored group health insurance on self-employment using Medicare eligibility as an exogenous change in insurance availability.

wealth and health insurance status. The first two lines of the top (tax data) and bottom (HRS data) panels of the table show that when we use only the early eligibility age instrument, there is no statistically significant relationship between claiming Social Security and self-employment hazards. However, when we use only the full retirement age instrument, there is a statistically significant relationship. These results suggest that self-employment transitions are driven more by reaching full retirement age than early retirement age. In contrast, retirement transitions appear to be more strongly driven by the early eligibility age. There also appears to be a positive relationship between the early eligibility age and switching from self-employment to wage employment. The next four lines of the top panel and the next two lines of the bottom panel suggest that the impact of Social Security claiming on the hazard of self-employment increases with wealth. Finally, the last line of the bottom panel suggests that the coefficients on Social Security claiming are similar in magnitude for individuals whose health insurance status does not depend on employment. However, they lose some significance due to the smaller sample size.

Our results regarding Medicare eligibility contrast with Fairlie, Kapur, and Gates (2011), who find an increase in business ownership in the few months after turning 65 relative to the few months before turning 65. They attribute this change to the availability of Medicare. Our findings may differ for a few reasons. First, Fairlie, Kapur, and Gates focus on business ownership, which may be significantly narrower than our definition of self-employment. In the tax data, we define self-employment as the presence of a Schedule SE with sufficient net income. Many individuals who report Schedule SE income may be consultants or other independent contractors who do not consider themselves business owners. In the HRS as well, the question we use to classify individuals' work status refer to self-employment rather than business ownership. Second, Fairlie, Kapur, and Gates restrict attention to individuals working at least 15 hours per week for

at least 20 weeks per year, defining all other individuals as not working. Our sample contains many individuals who work considerably less than 15 hours per week and have quite low earnings. Thus, their sample selection likely excludes many individuals who are using self-employment as a transition to retirement while ours does not. Finally, Fairlie, Kapur, and Gates focus on transitions that occur immediately after turning 65. The transitions we study occur over a longer period – one year in the tax data and two years in the HRS data. Thus, it is possible that the transitions Fairlie, Kapur, and Gates study – the ones that occur immediately upon turning 65 among those continue to work at least 15 hours per week, and could be described as business ownership – are Medicare driven, while the transitions we study are associated with the retirement process. Indeed, the point estimate of the impact of Social Security claiming is slightly smaller for those without employment-based health insurance, leaving open the possibility that some self-employment transitions are Medicare driven.

b. Earnings

Tables 6 (for the tax data) and 7 (for the HRS data) show the percentiles of the earnings distribution broken down by current work status. Table 7 additionally shows the percentiles of the weekly hours distribution for the HRS data. In both tables, the top panel represents the full sample, while the bottom panel represents individuals who were wage earners in 1999 (for the tax data) or the baseline wave (for the HRS data). In the bottom panel, observations from 1999 or the baseline wave are excluded. Table 7 suggests that in the full sample, self-employed individuals earn more on average than wage earners. However, self-employed earnings are lower at the 50th percentile and below, suggesting that the difference in means is driven by outliers at the top. Indeed, the 99th percentile of earnings for the self-employed is substantially larger than

the 99th percentile of earnings for wage-earners. The earnings of the self-employed are higher in the HRS than in the tax data, possibly due to underreporting on tax returns or due to individuals underestimating costs when reporting net earnings in the HRS.

The regression in the first column of Table 8 shows that, in the tax data, individuals in the younger cohort who start out as wage earners experience a drop of around $10,649 upon switching to self-employment. This drop could merely reflect underreporting, or the fact that small businesses take a few years to become established. However, the interaction between the indicator for self-employed and the 1945 cohort dummy suggests that the older cohort experiences an additional $18,160 drop in earnings upon switching to self-employment. This effect is not simply due to aging (i.e., that individuals who start out as workers are older when they switch to self-employment, and earnings decline with age) because we have included interactions between the year dummies and the 1945 cohort dummy. These interactions should pick up the fact that the 1945 cohort's earnings are likely to decline over time relative to the younger cohort's earnings regardless of employment type. Our result therefore suggests that self-employment could be a form of partial retirement for older people. When the full sample is used (in the second column of the table), the impact of self-employment for older workers is smaller. That is, the drop in income is more pronounced for individuals who start out as wage earners and switch to self-employment late in life.

Table 9 presents similar results for the HRS data. The top panel of Table 9 suggests that income and hours drop upon transition to self-employment, and that the drop is more pronounced for wage-earners who later become self-employed. The HRS data do not include a younger comparison group. However, the bottom panel of Table 9 interacts the self-employment indicator with a set of age dummies indicating whether the individual has reached Social Security early or

full eligibility ages. These results suggest that the drop in income and hours following self-employment is concentrated among those who transition to self-employment after reaching Social Security full retirement age.

Table 10 shows the impact of the duration of self-employment on total earnings. The first column suggests that when a wage earner in the younger cohort becomes self-employed, earnings initially drop by $14,674. However, once an individual has been self-employed for more than 4 years, expected earnings increase slightly relative to what the same individual earned in wages. On the other hand, not only is the initial drop more pronounced for the older cohort, but earnings continue to decline with duration of self-employment. Again, this effect is not simply because earnings decline with age for older workers. The regression includes year dummies interacted with the older cohort dummy, which should control for any decline in income over time due to aging. Therefore, our result is again consistent with the story that older workers who transition to self-employment are in the process of retirement, gradually reducing their effort and earnings as they continue in self-employment. The second column of the table shows that these effects are present even when people who start out self-employed (or not working) are included in the sample; however, they are smaller in magnitude.

4. Conclusions

We have shown that the flow of individuals transitioning between working for an employer to self-employment is rather modest: approximately 1 percent per year. This is true of members of the 1945 birth cohort who range from 54 to 68 during our period of observation, members of the 1940 birth cohort who range from 59 to 73 during our period of observation, and members of the 1965 birth cohort who range from 34 to 48 during our period of observation.

Second, we find that the flow into self-employment increases substantially upon claiming Social Security, and this effect is more pronounced among those with greater retirement wealth. Finally, we show that individuals who transition to self-employment in their 60s experience a much larger drop in earnings relative to prime age individuals, and the relative decline continues as they gain experience in self-employment. All of this suggests that the transition from wage employment to self-employment for workers in their 60s is likely to represent a transition from full-time work to part-time work. That is, self-employment appears to play the role of a bridge job in the transition to retirement, allowing workers to slowly reduce hours. This pathway to retirement appears to be most common among those with greater retirement wealth. The earnings of the self-employed are sufficiently low that the contribution to retirement security is quite modest. However, self-employed people do tend to retire at a later age.

The overall conclusions are that the work to self-employment to retirement pathway is less common than one might expect given the flexibility of self-employment, and that the number of people in their 60s who are self-employed would be even lower if reported in terms of "full time equivalent" workers. This finding could reflect fixed costs of switching to self-employment. However, if the "gig economy," which makes self-employment more accessible, continues to grow, self-employment may play an increasing role in the transition to retirement. To the extent that policy makers would like to encourage people to work longer to enhance retirement security, a year of self-employment is much less productive than an extra year of work for an employer. On the other hand, self-employment may increase career lengths by allowing workers to retire gradually.

References

Angrisani, Marco, Michael D. Hurd, Erik Meijer, Andrew M. Parker, and Susann Rohwedder (2013), "Labor Force Transitions at Older Ages: The Roles of Work Environment and Personality," Michigan Retirement Research Center Working Paper no. 2013-295.

Åstebro and Chen (2014), "The entrepreneurial earnings puzzle: Mismeasurement or real?" Journal of Business Venturing 29(1), pp. 88-105.

Biehl, Amelia M., Tami Gurley-Calvez, and Brian Hill (2014), "Self-employment of older Americans: do recessions matter?" *Small Business Economics* 42(2), pp. 297-309.

Boyle, Melissa A. and Joanna N. Lahey (2010), "Health insurance and the labor supply decisions of older workers: Evidence from a U.S. Department of Veterans Affairs expansion," *Journal of Public Economics* 94(7-8), pp. 467-478.

Brady, Peter J., Steven Bass, Jessica Holland, and Kevin Pierce (2017), "Using Panel Tax Data to Examine the Transition to Retirement," Unpublished manuscript, https://ssrn.com/abstract=2928375.

Bruce, Donald, Douglas Holtz-Eakin, and Joseph Quinn (2000), "Self-Employment and Labor Market Transitions at Older Ages," Unpublished manuscript, http://crr.bc.edu/working-papers/self-employment-and-labor-market-transitions-at-older-ages/.

Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn (2011), "Reentering the labor force after retirement", Monthly Labor Review

Cahill, Kevin E., Michael D. Giandrea, and Joseph F. Quinn (2013), "New Evidence on Self-Employment Transitions Among Older Americans with Career Jobs," Working Paper 463, Bureau of Labor Statistics.

Coile, Courtney, Mark Duggan, and Audrey Guo (2016), "To Work for Yourself, for Others, or Not At All? How Disability Benefits Affect the Employment Decisions of Older Veterans," Working Paper 23006, National Bureau of Economic Research, http://www.nber.org/papers/w23006.

Fairlie, Robert W., Kanika Kapur, and Susan Gates (2011), "Is employer-based health insurance a barrier to entrepreneurship", *Journal of Health Economics* 30(1), pp. 146–162.

Feldman, Naomi E. and Joel Slemrod (2007), "Estimating Tax Noncompliance with Evidence from Unaudited Tax Returns," *Economic Journal* 117(518), pp. 327-352.

Fuchs, Victor (1982), "Self-Employment and Labor Force Participation of Older Males," *Journal of Human Resources* 17(3), pp. 339-357.

Giandrea, Michael, Kevin E. Cahill, and Joseph F. Quinn (2008), "Self-Employment Transitions among Older American Workers with Career Jobs," BLS Working Paper no. 418.

Heim, Bradley T. (2015), "Understanding the decline in self-employment among individuals nearing retirement", *Small Business Economics* 45, pp. 561-580.

Jackson, Emilie, Adam Looney, and Shanthi Ramnath (2017), " The Rise of Alternative Work Arrangements: Evidence and Implications for Tax Filing and Benefit Coverage," Working Paper 114, Office of Tax Analysis, https://www.treasury.gov/resource-center/tax-policy/tax-analysis/Documents/WP-114.pdf.

Kerr, Gerry, and Marjorie Armstrong-Stassen (2011), "The Bridge to Retirement: Older Workers' Engagement in Post-Career Entrepreneurship and Wage-and-Salary Employment," *The Journal of Entrepreneurship* 20(1), pp. 55–76.

Lusardi, Annamaria, Dimitris Christelis, and Scheresberg Carlos de Bassa (2016) "Entrepreneurship Among Baby Boomers: Recent Evidence from the Health and Retirement Study," Working Paper 2016-4, Global Financial Litearcy Excellence Center at George Washington University, http://gflec.org/wp-content/uploads/2016/10/WP-2016-4-Entreprenuership-Among-Baby-Boomers.pdf?x28148

Maestas, Nicole (2010), "Back to Work: Expectations and Realizations of Work after Retirement," *Journal of Human Resources* 45(3), pp. 718-748.

Quinn (1980), "Labor Force Participation Patterns of Older Self-Employed Workers," *Social Security Bulletin* 43(4), pp. 17-28.

Ruhm, Christopher J. (1990). Bridge Jobs and Partial Retirement. *Journal of Labor Economics 8*(4), pp. 482–501.

Zissimopoulos, Julie and Lynn A. Karoly (2007), "Transitions to self-employment at older ages: The role of wealth, health, health insurance and other factors," *Labour Economics* 14, pp. 269-295.

Zissimopoulos, Julie and Lynn A. Karoly (2009), "Labor-Force Dynamics at Older Ages Movements into Self-Employment for Workers and Nonworkers," *Research on Aging* 31(1), pp. 89-111.

Zissimopoulos, Julie, Nicole Maestas, and Lynn A. Karoly (2007), "The Effect of Retirement Incentives on Retirement Behavior: Evidence from the Self-Employed in the United States and England" RAND Labor and Population Working Paper no. WR- 528.

Zissimopoulos, Julie, Lynn A. Karoly, and Qian Gu (2009), Liquidity Constraints, Household Wealth, and Self-Employment," RAND Labor and Population Working Paper no. WR-725.

Figure 1: Hazard of Self-Employment (Tax Return Data)
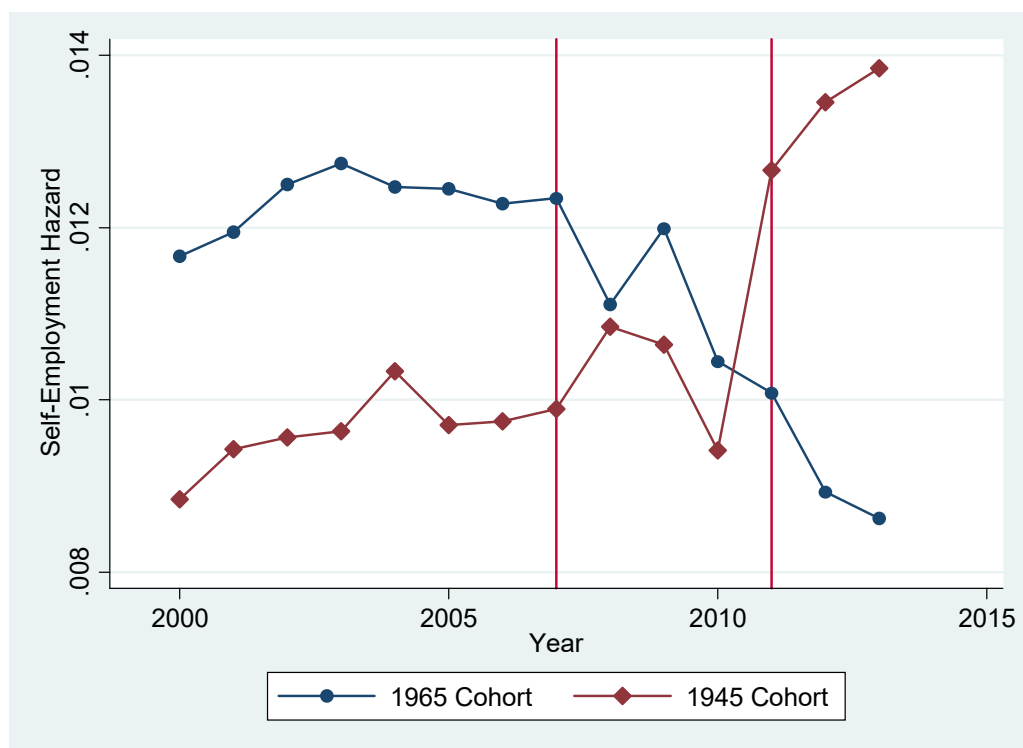
Figure 2: Two-Year Hazard of Self-Employment (HRS)
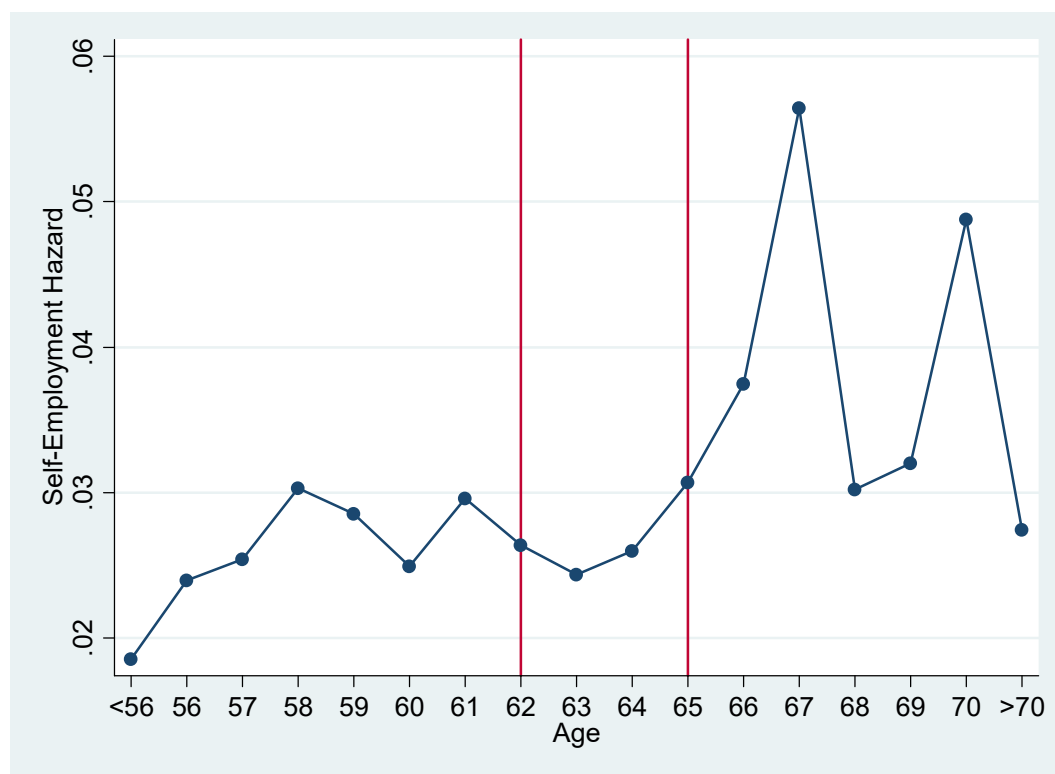
Figure 3: Hazard of Retirement (Tax Data)
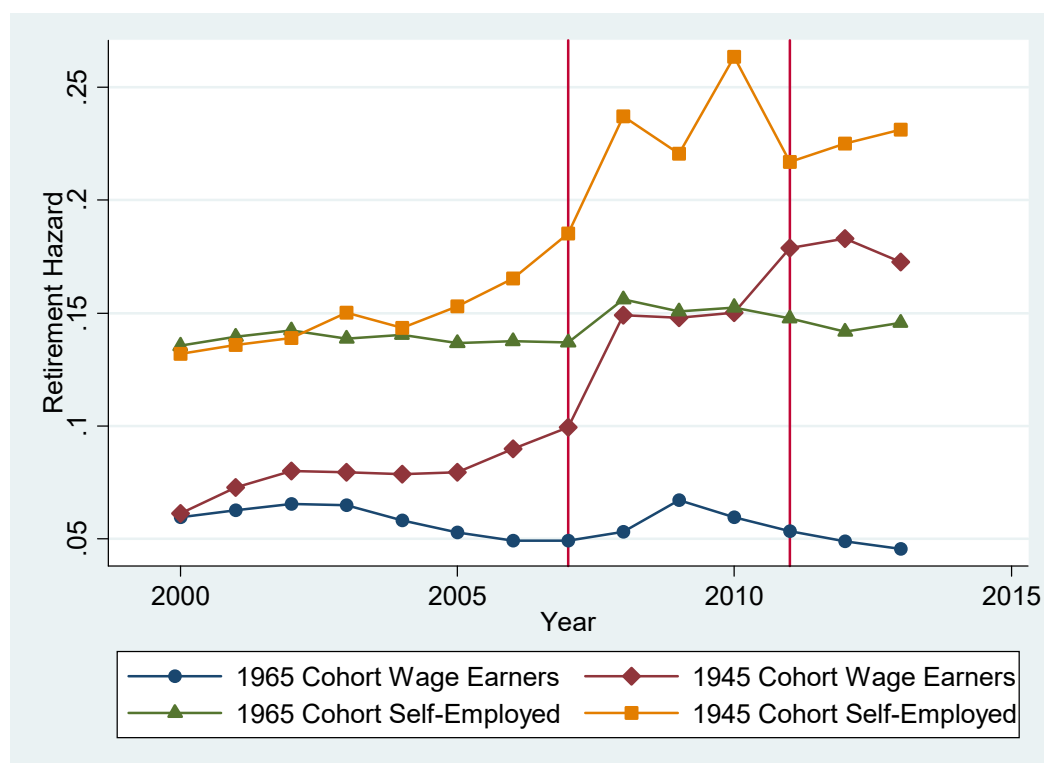
Figure 4: Two-Year Hazard of Retirement (HRS)

Table 1: Transition Probabilities (Tax Return Data)

	t+1								
	1940 Cohort			1945 Cohort			1965 Cohort		
t	Not Working	Wage Earner	Self-Employed	Not Working	Wage Earner	Self-Employed	Not Working	Wage Earner	Self-Employed
Not Working	0.95	0.04	0.02	0.92	0.06	0.02	0.81	0.16	0.04
Wage Earner	0.15	0.84	0.01	0.10	0.89	0.01	0.06	0.93	0.01
Self-Employed	0.22	0.05	0.73	0.18	0.07	0.75	0.14	0.13	0.73

	t+2								
	1940 Cohort			1945 Cohort			1965 Cohort		
t	Not Working	Wage Earner	Self-Employed	Not Working	Wage Earner	Self-Employed	Not Working	Wage Earner	Self-Employed
Not Working	0.93	0.05	0.02	0.89	0.08	0.03	0.74	0.22	0.05
Wage Earner	0.26	0.73	0.01	0.18	0.81	0.01	0.08	0.90	0.02
Self-Employed	0.31	0.07	0.62	0.24	0.09	0.66	0.18	0.19	0.64

	t+4								
	1940 Cohort			1945 Cohort			1965 Cohort		
t	Not Working	Wage Earner	Self-Employed	Not Working	Wage Earner	Self-Employed	Not Working	Wage Earner	Self-Employed
Not Working	0.92	0.06	0.02	0.86	0.11	0.03	0.65	0.29	0.06
Wage Earner	0.43	0.55	0.02	0.30	0.68	0.02	0.11	0.86	0.02
Self-Employed	0.44	0.09	0.46	0.34	0.12	0.54	0.22	0.26	0.53

Table 2: Transition Probabilities (HRS Data)

	t+2		
t	Not Working	Wage Earner	Self-Employed
Not Working	0.92	0.05	0.02
Wage Earner	0.16	0.81	0.02
Self-Employed	0.16	0.07	0.77
	t+4		
t	Not Working	Wage Earner	Self-Employed
Not Working	0.91	0.06	0.03
Wage Earner	0.27	0.69	0.04
Self-Employed	0.25	0.10	0.65

Notes: Transition probabilities use respondent-level weights.

Table 3: Impact of Social Security Claiming on Work Transitions (Tax Return Data)

VARIABLES	P(Become Self-Employed | Wage Earner)	P(Become Wage Earner | Self-Employed)	P(Stop Work | Self-Employed)	P(Stop Work | Wage Earner)
Claim Social Security	0.005***	0.003	0.031***	0.074***
	(0.001)	(0.004)	(0.005)	(0.002)
Age	0.003***	0.005*	0.038***	0.049***
	(0.000)	(0.003)	(0.004)	(0.001)
Age^2	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	2,605,911	293,546	365,186	2,961,502
Dependent Variable Mean	0.011	0.075	0.196	0.120

*** p<0.01, ** p<0.05, * p<0.1

Notes: Standard errors clustered by individual in parentheses. In the first two columns, the dependent variable is conditioned on continuing to work.Instruments for Social Security claiming include reaching age 62 and reaching full retirement age.

Table 4: Impact of Social Security and Pension Claiming on Work Transitions (HRS Data)

VARIABLES	P(Become Self-Employed | Wage Earner)	P(Become Wage Earner | Self Employed)	P(Become Self-Employed in New Occupation | Wage Earner	P(Become Self-Employed in Same Occupation | Wage Earner	P(Stop Work | Self-Employed)	P(Stop Work | Wage Earner)
Claim Social Security	0.0167**	0.000875	0.0124**	0.00331	0.0793***	0.105***
	(0.00770)	(0.0212)	(0.00608)	(0.00469)	(0.0246)	(0.0152)
Claim Pension	0.0183	0.0767*	0.0355**	-0.0148	0.0430	0.348***
	(0.0222)	(0.0400)	(0.0173)	(0.0137)	(0.0468)	(0.0364)
Age	0.000646***	-0.000898	0.000558***	0.000108	-0.00102	0.00133***
	(0.000236)	(0.000741)	(0.000174)	(0.000160)	(0.000824)	(0.000496)
Age^2	-4.47e-07***	4.34e-07	-4.08e-07***	-5.29e-08	8.78e-07*	-7.84e-07**
	(1.54e-07)	(4.37e-07)	(1.15e-07)	(1.03e-07)	(5.07e-07)	(3.23e-07)
Observations	36,609	10,120	36,593	36,593	12,418	44,977
Dependent Variable Mean	0.028	0.085	0.015	0.012	0.162	0.165

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Notes: Standard errors clustered by individual in parentheses. Regressions utilize respondent-level weights and also include wave dummies. In the first four columns, the dependent variable is conditioned on continuing to work. Instruments for Social Security and pension claiming include reaching age 62, reaching Social Security full retirement age; reaching pension early and full retirement ages (for individuals with DB pensions); and reaching age 59.5 (for individuals with DC pensions).

Table 5: Impact of Social Security Claiming on Work Transitions (breakdown by instruments and subgroups)

VARIABLES	P(Become Self-Employed | Wage Earner)	P(Become Wage Earner | Self-Employed)	P(Stop Work)
	Tax Return Data		
Instrument = early retirement age[a]	0.002	0.022**	0.153***
	(0.001)	(0.010)	(0.003)
Instrument = full retirement age[a]	0.006***	-0.000	0.027***
	(0.001)	(0.004)	(0.002)
Zero IRA wealth[b]	0.004***	0.013***	0.065***
	(0.001)	(0.004)	(0.002)
50,000 > IRA wealth > 0[b]	0.009***	-0.014	0.038***
	(0.003)	(0.019)	(0.009)
100,000 > IRA wealth ≥ 50,000[b]	0.016***	-0.042	0.073***
	(0.005)	(0.026)	(0.014)
IRA wealth ≥ 100,000[b]	0.017***	-0.025	0.057***
	(0.004)	(0.015)	(0.009)
	HRS Data		
Instrument = early retirement age[c]	0.00887	-0.0225	0.209***
	(0.0140)	(0.0298)	(0.0162)
Instrument = full retirement age[c]	0.0211**	0.0271	0.0517***
	(0.00842)	(0.0235)	(0.0169)
Zero retirement wealth[d]	0.0139	0.0520	0.0987***
	(0.0124)	(0.0369)	(0.0234)
Positive retirement wealth[d]	0.0173*	-0.0467*	0.0547***
	(0.0100)	(0.0252)	(0.0176)
Health insurance independent of employment[d]	0.0155*	-0.00291	0.102***
	(0.00915)	(0.0253)	(0.0146)

*** p<0.01, ** p<0.05, * p<0.1

Notes: Coefficients are IV estimates of the impact of Social Security receipt on the transition probability given in the column heading. Standard errors clustered by individual in parentheses. In the first two columns, the dependent variable is conditioned on continuing to work. All regressions include controls for age and age squared. HRS regressions also include wave dummies.

a - Instruments for Social Security claiming are as indicated

b - Instruments for Social Security claiming include reaching age 62 and reaching Social Security full retirement age.

c - Regressions do not include indicators for private pension claiming or instruments indicating private pension eligibility. Instruments for Social Security claiming are as indicated.

d - Regressions also include private pension claiming. Insturments for private pension and Social Security claiming include reaching age 62; reaching Social Security full retirement age; reaching pension early and full retirement ages (for individuals with DB pensions); and reaching age 59.5 (for individuals with DC pensions).

Table 6: Income Summary Statistics (Tax Data)

Panel A: Full Sample

	1945 Birth Cohort			1965 Birth Cohort		
Percentiles	Work for Employer	Self-Employed	Not Working	Work for Employer	Self-Employed	Not Working
1%	3597.009	3172.013	0	3778.121	3245.337	0
5%	6078.031	3884.01	0	7039.916	4264.9	0
10%	9236.307	4720.846	0	11051.33	5468.615	0
25%	18597.07	8099.749	0	21430.77	8958.454	0
50%	35084.24	17578.92	0	37259.32	15341.71	0
75%	59261.36	44487.2	0	59463.3	31762.99	0
90%	93940.28	108658.3	498.9462	91800.18	74465.31	1103.482
95%	130361.6	184994.7	1563.055	123615	134292.3	1992.857
99%	319919.2	524961	2696.646	268797.3	426936.8	2794.917
Mean	52500.55	52845.54	171.71	50868.06	40543.98	243.49

Panel B: Wage Earner in 1999

	1945 Birth Cohort			1965 Birth Cohort		
Percentiles	Work for Employer	Self-Employed	Not Working	Work for Employer	Self-Employed	Not Working
1%	3712.414	3129.181	0	4164.418	3272.44	0
5%	6584.274	3680.087	0	8678.432	4371.72	0
10%	10079.5	4402.002	0	13523.07	5726.18	0
25%	20073.63	7153.896	0	24653.7	9343	0
50%	36577.98	14720.44	0	40544.78	16579.91	0
75%	60779.77	38492.05	0	63310.38	37223.57	0
90%	96058.48	92235.86	329.5387	96796.4	94257.81	1349.299
95%	133486.8	161377.8	1401.218	130368.6	178584.6	2148.997
99%	329811.1	497172.7	2665.427	286782.7	573016.6	2832.018
Mean	54364.91	46495.91	155.02	54877.31	49936.14	283.04

Notes: Panel B includes only observations after 1999.

Table 7: Income, Hours, and Wages Summary Statistics (HRS data)

	Panel A: Full Sample					
	Earnings			Hours		
Percentiles	*Work for Employer*	*Self-Employed*	*Not Working*	*Work for Employer*	*Self-Employed*	*Not Working*
1%	1263.51	0.00	0.00	5.00	2.00	0.00
5%	6130.10	343.25	0.00	15.00	6.00	0.00
10%	10470.53	3259.73	0.00	20.00	10.00	0.00
25%	21396.15	12260.20	0.00	36.00	24.00	0.00
50%	40079.81	35666.66	0.00	40.00	40.00	0.00
75%	68291.08	80683.57	0.00	48.00	50.00	0.00
90%	106550.00	170155.00	0.00	56.00	65.00	0.00
95%	144664.40	278798.50	0.00	60.00	75.00	0.00
99%	268136.90	800069.80	0.00	80.00	100.00	0.00
Mean	55413.24	83020.54	0.00	40.35	39.37	0.00
	Panel B: Employees at Baseline					
	Earnings			Hours		
Percentile	*Work for Employer*	*Self-Employed*	*Not Working*	*Work for Employer*	*Self-Employed*	*Not Working*
1%	1530.36	0.00	0.00	5.00	1.00	0.00
5%	6830.50	0.00	0.00	15.00	5.00	0.00
10%	11326.83	1489.66	0.00	20.00	8.00	0.00
25%	22476.63	6121.44	0.00	36.00	20.00	0.00
50%	40734.45	20758.18	0.00	40.00	30.00	0.00
75%	68770.60	55370.92	0.00	47.00	45.00	0.00
90%	106298.90	120084.30	0.00	55.00	60.00	0.00
95%	144182.60	191294.90	0.00	60.00	70.00	0.00
99%	263447.70	576311.30	0.00	80.00	90.00	0.00
Mean	55247.05	56225.39	0.00	40.36	32.97	0.00

Notes: Summary statistics use respondent-level weights. Panel B utilizes only observations after the baseline wave.

Table 8: Impact of Self-Employment on Earnings (Tax Data)

	Wage Earner in 1999	Full Sample
Self Employed	-10,649.349***	-7,971.448***
	-1,002.40	-522.28
Self Employed * 1945 Cohort	-18,159.984***	-7,486.722***
	-2,440.79	-1,130.13
Not Working	-32,666.140***	-28,154.723***
	-205.296	-142.751
Not Working x 1945 Cohort	-1,321.728***	-5,291.311***
	-371.986	-282.037
Observations	7,252,994	10,496,130
Individuals	518,071	699,742
Dependent Variable Mean for Wage Earners (1945 cohort)	54364.91	52500.55
Dependent Variable Mean for Wage Earners (1965 cohort)	54877.31	50868.06

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Notes: Standard errors clustered by individual in parentheses. All regressions also include year dummies, interactions between year dummies and the 1945 cohort dummy, and individual fixed effects. Regression for wage earners in 1999 utilize only post 1999 observations.

Table 9: Impact of Self-Employment on Earnings, Hours, and Hourly Wage

	Earnings		Hours	
	Wage Earner at		Wage Earner at	
VARIABLES	Baseline	Full Sample	Baseline	Full Sample
	Panel A: Average Impact			
Self-Employed	-21,367.976***	-3,765.199	-8.783***	-4.240***
	(3,855.710)	(2,352.512)	(0.647)	(0.411)
Not working	-39,428.602***	-38,698.157***	-34.655***	-34.599***
	(860.326)	(866.812)	(0.210)	(0.182)
	Panel B: Impact by Age			
(Self-Employed) x (Age < 62)	-13,137.006**	3,685.758	-6.566***	-1.678***
	(6,122.094)	(4,357.196)	(0.803)	(0.475)
(Self-Employed) x (FRA > Age ≥ 62)	-17,747.992**	8,413.412	-8.700***	-4.845***
	(8,495.243)	(13,536.141)	(1.190)	(0.642)
(Self-Employed) x (Age ≥ FRA)	-34,522.246***	-27,992.550***	-11.531***	-9.241***
	(7,612.669)	(7,969.124)	(0.810)	(0.528)
Not Working	-39,777.853***	-39,654.032***	-34.770***	-34.963***
	(827.848)	(739.425)	(0.211)	(0.182)
Observations	59,411	118,796	63,064	126,640
Individuals	9,066	19,685	9,284	20,470
Dependent Variable Mean for Employees	55247.05	55413.24	40.36	40.35

*** p<0.01, ** p<0.05, * p<0.1

Notes: Standard errors clustered by individual in parentheses. Regressions utilize respondent-level weights and also include age dummies, wave dummies, and individual fixed effects. Regressions for wage earners and self-employed at baseline utilize only post-baseline observations.

Table 10: Impact of Self-Employment on Earnings by Duration of Self Employment (Tax Data)

	Wage Earner in 1999	Full Sample
Self-Employed 1-2 Years	-14,673.577***	-10,878.007***
	(776.519)	(429.597)
Self=Employed 3-4 Years	-4,824.385***	-4,339.810***
	(1,855.141)	(844.154)
Self Employed 4+ Years	3,942.567*	969.435
	(2,135.094)	(985.919)
Self-Employed 1-2 Years * 1945 Cohort	-14,119.462***	-7,315.809***
	(1,899.244)	(992.467)
Self=Employed 3-4 Years * 1945 Cohort	-24,799.463***	-8,518.532***
	(4,170.007)	(1,591.944)
Self Employed 4+ Years * 1945 Cohort	-31,385.762***	-8,935.621***
	(4,832.182)	(1,955.521)
Not Working	-32,637.193***	-28,142.105***
	(205.595)	(142.840)
Not Working x 1945 Cohort	-1,344.241***	-5,169.678***
	(374.683)	(280.646)
Observations	7,252,994	10,496,130
Individuals	518,071	699,742
Dependent Variable Mean for Wage Earners (1945 Cohort)	54364.91	52500.55
Dependent Variable Mean for Wage Earners (1965 cohort)	54877.31	50868.06

*** p<0.01, ** p<0.05, * p<0.1

Notes: Standard errors clustered by individual in parentheses. All regressions also include year dummies, interactions between year dummies and the 1945 cohort dummy, and individual fixed effects. Regression for wage earners in 1999 utilize only post 1999 observations.