Self-Employment and the Role of Health Insurance*

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First version: November 2007
This version: February 2009

Abstract

We investigate the effect of health insurance on labor market transitions in and out of self-employment as well as on the likelihood of being self-employed. We consider the role of individual health insurance coverage along with that from a spouse. Next, we examine a series of tax deductions granted to the self-employed through amendments made to the 1986 Tax Reform Act. Using data from the Current Population Survey for 1996-2007, we find significant but small effects of the after-tax health insurance premium on the entry rate, with no effect on exits from self-employment or the likelihood of being self-employed.

JEL Classification: J32, J48, I11.
Keywords: Health insurance, self-employment, CPS, ORG.

*We would like to thank David Autor, Tanguy Brachet, Keith Brand, Brigitte Madrian, Oscar Mitnik, Phil Robins, and participants at the 2008 Meetings of the Society of Labor Economics, the European Society for Population Economics, the American Society of Health Economists, the Southeastern Health Economics Study Group Conference, the Federal Trade Commission's Seminar Series, and the Applied Microeconomics Workshop at the University of Miami. We thank Daniel Feenberg at the NBER for help with TAXSIM.

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1 Introduction

The link between health insurance and wage/salary employment in the U.S. has received considerable attention in the popular press and in the economics literature. Traditionally in the U.S., insurance has been tied to full-time wage/salary employment, although recent debates have centered on possible modifications to this relationship. This link has arisen for a variety of reasons including: 1) the nature of the U.S. tax system; 2) the economies of scale achieved when insurance is sold to firms due to better risk-pooling opportunities and lower administrative costs per subscriber; 3) the reduction in moral hazard resulting from the provision of benefits in the form of services, as opposed to cash indemnities; and 4) the alleviation of adverse selection again due to risk-pooling among employees.

According to estimates from the Kaiser Family Foundation that use data from the Current Population Survey (CPS), the overwhelming majority (61 percent) of non-elderly Americans receive health insurance (HI) through their employer or their spouse's employer (KFF, 2007). Since coverage is often linked to full-time wage/salary (WS) employment, a larger fraction of the self-employed (SE) are uninsured. About 28 percent of SE persons were estimated to be without HI in 2006, while only 16 percent of full-time WS workers lacked coverage (KFF, 2007).[1] The literature on health insurance has largely overlooked the possibility that the present health care system in the U.S. may have implications for entrepreneurial activity. The role of such activity in a capitalist economy is vital as it is often credited with encouraging competition, introducing new ideas and technology, and creating jobs (Moore, 2003). Our paper serves as one of the first attempts in quantifying the importance of HI for entrepreneurship.

Primarily, the economics literature on this topic has sought to determine whether there is any "job-lock" and if so, how much. Job-lock occurs when a WS worker is locked into a job for fear of losing his employer-sponsored health insurance (ESI). This may lead to reduced job search, and hence labor market inefficiencies may occur. Beginning in the 1980s, attempts were

[1] Although the current discussion has focused on those Americans lacking HI, the inherent differences between these groups in terms of their risk attitudes could also lead to discrepancies in their demand for HI. Furthermore, research has shown that the SE do not necessarily have worse health outcomes when compared to their WS counterparts (Perry and Rosen, 2004).

made to address such potential inefficiencies and various pieces of legislation were passed, most notably the 1986 Tax Reform Act (TRA86), the 1986 Consolidated Omnibus Reconciliation Act (COBRA), and the 1996 Health Insurance Portability and Accountability Act (HIPAA). Madrian's (1994) seminal work was motivated by the passage of COBRA and addressed whether job turnover was affected by the possible loss of ESI. Madrian (1994), along with and Gruber and Madrian (1994), Adams (2004), and Monheit and Cooper (1994) to a lesser extent, find evidence of job-lock using various data sets over a series of years.

On the other hand, others such as Holtz-Eakin (1994) and Kapur (1998) find no such evidence. Gilleskie and Lutz (2002) find none for married men, but a small effect for unmarried men. Buchmueller and Valletta (1996) provide evidence of job-lock for married women, but not for married men. When considering the two primary consequences of job-lock, namely employment duration and wages, Berger et al. (2004) do not find it to be statistically significant. Anderson (1997) contributes about half of the decline in the average mobility rates (20-40 percent) to "job-push" instead of job-lock. Job-push occurs when an employee is pushed out of a job because he/she is in need of HI. Dey and Flinn (2005) estimate a model of job search and matching and find that the job lock and the job push phenomena occur very infrequently. Thus, they conclude that ESI system in U.S. does not lead to any significant inefficiencies in terms of job mobility decisions. All of these papers on job-lock attempt to identify the role of HI in explaining workers' job turnover rates by exploiting variation in cost factors that lead to differences in individuals' valuation of ESI. While variation in alternative sources of HI coverage, primarily that from a spouse, has been the most common empirical identification strategy pursued, family size, pregnancies, and health conditions have also been used as cost factors.[2]

This paper investigates the role of HI in explaining labor market transitions with a special emphasis on the SE. We first focus on labor market transitions from WS employment into SE and then on exits from SE into WS jobs. To this end, we begin by following the job-lock literature (e.g., Madrian, 1994; Buchmueller and Valetta, 1996) by exploiting variation in

[2]See Gruber and Madrian (2004) for an overview of this literature and the various identification strategies used.

individual and spousal HI. In addition, a series of changes in the tax deductions offered to the SE for HI purchases provide us with a unique opportunity to exploit an exogenous source of identification. The original TRA86 allowed the SE to deduct 25 percent of their HI premium (i.e. own, spouse, and dependents) from their taxable income.[3] Between 1996 and 2003, a series of amendments were made to the TRA86 which gradually increased the deduction to 100 percent. Gumus and Regan (2008) study the TRA86 amendments in the context of the demand for HI as a policyholder, for both men and women. Their estimates of the price elasticity of demand suggest that this series of tax deductions did not provide sufficient incentives for SE entrepreneurs to obtain coverage. In light of these findings, we analyze whether the TRA86 amendments improved the chances of entrepreneurial entry and survival, as well as the likelihood of being SE, despite their ineffectiveness in encouraging previously uninsured SE individuals to purchase HI.

As mentioned, the literature relating HI availability to SE is somewhat limited, but some notable exceptions exist. A few papers have examined the role of alternative sources of coverage by focusing on married couples. The findings on this topic are somewhat mixed, however. Holtz-Eakin et al. (1996) find that spousal HI coverage encourages transitions into entrepreneurship while the lack of HI portability does not influence such transitions. Lombard (2001) finds that access to a spouse's HI plan increases the likelihood that a married woman chooses SE over WS employment. Wellington (2001) also finds positive effects of spousal HI on the likelihood of being SE; these effects are larger for husbands than for wives. Recently, Fairlie et al. (2008) estimate a so-called "entrepreneurship lock" using data from the CPS and find a large negative effect of ESI plans on the probability of entrepreneurship. They show that these effects are even larger for those without any spousal coverage than for those with spousal HI. They also provide evidence that Medicare eligibility may improve business ownership among older workers. Conversely, Bruce et al. (2000) find little impact of the portability of ESI on

[3]Previously, the 1942 Stabilization Act and the 1954 Internal Revenue Code granted the same rights to employers and employees for their individual contributions to their employees plans. See Thomasson (2002; 2003) for a history of the evolution of the American HI market. Note that the tax exclusions offered to the SE only reduce income taxes, while those extended to ESI reduce both income and payroll taxes.

the transition into SE among older workers.[4] Finally, DeCicca (2007) studies the impact of the 1993 New Jersey Individual Health Coverage Plan (IHCP) on the probability of being SE. The IHCP was designed to facilitate access to HI that was not employer-linked nor employer-sponsored. By comparing residents of New Jersey to those of Pennsylvania, he constructs a series of difference-in-differences (DD) estimates and finds that the IHCP did encourage individuals to become SE.

There are a few recent papers that have focused specifically on the effect of the TRA86 and its amendments in explaining SE decisions.[5] Gurley-Calvez (2006) studies the original TRA86 using data on tax records and finds positive (negative) effects of the mandated 25 percent tax deduction on entrepreneurial survival (exit). Velamuri (2008) also focuses on the original TRA86 to determine whether the 25 percent tax deduction encouraged more women without access to spousal HI to become SE. Using data from the CPS, she finds that the rate of SE among such women did in fact increase in the post-TRA86 era (i.e. 1990-1991). Heim and Lurie (2008) examine the amendments made to the TRA86, which increased the deductibility of HI premiums from 60 percent in 1999, to 70 percent in 2002, and to 100 percent in 2003 for the SE. Using a panel of tax returns, they investigate how these changes affected the probability of being SE, becoming SE, and exiting SE. They find that a decline in the after-tax price of HI for the SE increases the likelihood of being SE and the likelihood of entering SE with no statistically significant effect on rates of exit.[6]

[4]Another paper that focuses on the job mobility of older workers is Blau and Gilleskie (2000). They estimate the effect of employer provided retiree health insurance for a pooled sample of both SE and WS men but do not perform a separate analysis for each group.

[5]There are a select few other papers that have addressed other changes in the tax code, not related to HI deductibility, and how they affect SE decisions. For example, Gentry and Hubbard (2000), Bruce (2002), Moore (2003), Bruce and Gurley (2005), and Gurley-Calvez and Bruce (2007, 2008) focus on the relationship between marginal tax rates (MTRs) and average tax rates (ATRs) and entrepreneurial duration, entry, and exit.

[6]The advantages of using tax records are that one can identify the amount of the HI premium deducted and it is easier to define SE based on the amount of reported SE income. In fact, several papers (e.g., Holtz-Eakin et al., 1996; Gruber and Madrian, 2004; Hurst and Lusardi, 2004; 2008) discuss the difficulties associated with defining SE/entrepreneurship in survey data. The drawback of using tax records, however, is that they include very limited information in terms of individual, family, and job characteristics.

We use data from the 1996-2007 March Supplements of the CPS to analyze the role of HI on SE. We exploit the longitudinal feature of the CPS and construct a panel using the Outgoing Rotation Group (ORG) series which is composed of two-year cross-sections to investigate labor market transitions. The analysis is performed for prime-age (i.e. ages 25-60) working men. First, we construct a series of DD estimates from probit models which focus on the effect of individual and spousal HI and their interaction. The estimated marginal effect on the interaction term between individual and spousal coverage is the DD estimator and has the expected positive sign in both entry and exit probit equations. However, it is only statistically significant in the model of entry. A second set of probit models is estimated that exploit the exogenous variation in the relative after-tax HI premium (SE versus WS) due to the changes in the TRA86 tax deductions. For this purpose, we consider the amendments made to the TRA86 that gradually increased the initial 25 percent deduction to 100 percent in 2003. On average, we find that an increase of about 15 percent in this price ratio decreases the rate of entry by 3.7 percent. On the other hand, the effect on exit rates is statistically insignificant. For our final exercise, we estimate a random-effects probit model corresponding to the likelihood of being SE and find no significant effect of the relative after-tax HI premium.

This paper proceeds in the following manner: Section 2 outlines the empirical framework. Section 3 describes the data used in the analysis. Section 4 presents the results and Section 5 concludes.

2 Conceptual Framework and Empirical Specification

This paper investigates the role of HI coverage in explaining entrepreneurship and the related labor market transitions. First, we begin by examining the role HI plays in explaining entry from WS employment into SE, second in the decision to exit SE into WS jobs, and finally on the likelihood of being SE. We start by considering how variations in sources of coverage, namely individual and spousal, affect such decisions. Next, we consider whether the increasing generosity of the TRA86 tax deductions, in terms of their effect on the relative after-tax HI premium between the SE and the WS, influenced entry and exit rates as well as the average

rate of SE among prime-age working men.

2.1 Estimates using individual and spousal health insurance

To begin, we borrow from Madrian's (1994) seminal work and focus on variation in individual and spousal HI in explaining labor market transitions. In order to examine the impact of ESI on job mobility, Madrian (1994) measures the rate of turnover for married men, with and without ESI, whose spouses may or may not have HI. We too begin by examining these alternative sources of coverage for men, starting with the decision to enter SE from WS employment. We estimate the following probit regression of one-year labor market transitions for the WS men:

$$\begin{aligned} Entry_{i,t+1} = \alpha_1 OwnHI_{it} + \alpha_2 SpHI_{it} + \alpha_3 (OwnHI_{it} \times SpHI_{it}) \\ + X_{it}\theta + \phi IMRWS_{it} + Year_{it}\lambda + State_{it}\pi + \varepsilon_{it}, \end{aligned} \tag{1}$$

where $Entry$ is an indicator that takes a value of "1" if the individual i enters SE in year $t+1$ and a value of "0" if a he remains as a WS worker. $OwnHI$ takes on a value of "1" if the WS worker is the policyholder of his own ESI and a value of "0" otherwise. $SpHI$ indicates whether the spouse is the policyholder of her own ESI plan. X is a vector of individual, family, and job characteristics, as well as a constant term. $IMRWS$ is the inverse Mills' ratio which corrects for the initial conditions bias, as explained in the next paragraph. $Year$ is the set of year dummies, $State$ is a vector of state dummies, and ε is the error term which we assume is normally distributed. The DD estimate corresponds to the marginal effect on the interaction term. Madrian (1994), among others who examine job-lock, gauge the effect of individual HI between a control and an experimental group. Similarly in our case, we assess how the treatment, i.e. being the policyholder of one's own HI plan, varies between those with access to spousal HI and those without. If we can extend the arguments postulated by the job-lock literature, a WS worker with ESI is less likely to leave his WS job (i.e. he is more job-locked) and seek SE, all else equal. This effect is presumably even more pronounced for those whose spouses do not have their own ESI. Thus, we expect the marginal effect associated with α_1 to

be negative and that associated with α_3 to be positive.[7]

In order for an individual to be in our sample, when we estimate the likelihood of entry into SE, he must be WS in period t—i.e. those who were already SE in t are excluded from the analysis. We are unable to observe the transitions into SE that occurred before or after our period of analysis and thus we have a selected sample. Following Bruce (2000), we correct for this "initial conditions bias" by first estimating a probit model where the dependent variable takes on a value of "1" if the man is first observed in a WS job and "0" if he is instead SE. The regressors in this first-stage estimation include the individual and family characteristics along with the state and year dummies. As in Bruce (2000), identification is achieved through a veteran status regressor.[8] The resulting estimated inverse Mills' ratio ($IMRWS$) is then included as a regressor in the second-stage probit.

Next, we estimate another DD model corresponding to the likelihood of exit from SE into WS jobs using a framework similar to that above:

$$\begin{aligned} Exit_{i,t+1} = \alpha_1 OwnHI_{it} + \alpha_2 SpHI_{it} + \alpha_3 (OwnHI_{it} \times SpHI_{it}) \\ + X_{it}\theta + \phi IMRSE_{it} + Year_{it}\lambda + State_{it}\pi + \varepsilon_{it}. \end{aligned} \tag{2}$$

The primary difference between equations (1) and (2) is the dependent variable: $Exit$ is an indicator which takes a value of "1" if an entrepreneur exits SE and takes a WS job. If instead he chooses to remain SE, it takes on a value of "0." The $IMRSE$ in this specification now corresponds to the first-stage probit which corrects for the fact that we have a selected sample of individuals—i.e. those who were SE in period t. Again, we compare the effect of $OwnHI$ between a control and an experimental group which are defined by $SpHI$. The DD estimate

[7] Ai and Norton (2003) discuss the problems associated with calculating the marginal effects and the statistical significance for the interaction terms in non-linear models. They suggest a correction for obtaining the marginal effect on the interaction terms which requires calculating the entire cross-derivative. A recent paper by Puhani (2008) challenges these assertions, however. Table 5 reports both the regular marginal effects [in brackets] and those obtained using the Ai and Norton (2003) method {in braces} associated with the interaction terms. Both turn out to be identical in terms of statistical significance and very similar in magnitude. Therefore, in what follows, we refer to the figures reported in brackets only.

[8] The results to this exercise can be obtained from the authors upon request.

is the marginal effect associated with the interaction between $OwnHI$ and $SpHI$. In order to obtain coverage as a policyholder, SE individuals must purchase HI in the private non-group market. Rates are much higher in this market for reasons explained in the introduction. Additionally, individuals incur search costs and run the risk of being denied coverage for pre-existing conditions. Therefore, having HI coverage as a SE individual, at least to some extent, may be merely proxying for success as an entrepreneur. If individuals are discouraged from switching jobs if they have HI, an uninsured entrepreneur is more likely to exit SE and seek a WS job where he will be likely offered ESI. This is especially the case for those whose spouses do not have their own ESI. Thus, we would again expect the marginal effect associated with α_1 to be negative and that of α_3 to be positive.

2.2 Estimates using the TRA86 amendments

It is difficult to argue that variations in an individual's HI status are orthogonal to those of his spouse. In attempts to circumvent such endogeneity issues, the job-lock literature has also focused on other cost factors based on an individual's, or his family's, health status and/or medical expenditures. However, there are problems associated with these latter identification strategies too, as discussed by Gruber and Madrian (2004). In light of these concerns, we pursue a second identification strategy where we exploit the exogenous variations in the increasingly generous HI tax deductions afforded by the TRA86 amendments. Prior to passage of the original TRA86, the SE who did not itemize their income tax deductions, paid for their HI with after-tax dollars. The original TRA86-mandated tax deduction was temporary and set to expire in 1992. The deduction was made retroactive, however, for persons who filed an amended return, and were made permanent in 1996. The Small Business Job Protection Act of 1996 established a schedule that would increase this deduction to 80 percent by 2007. The schedule was actually accelerated twice through the Taxpayer Relief Act of 1997 and the Tax and Trade Extension Relief Act of 1998. Through these series of amendments, the initial 25 percent TRA86 tax deduction was increased to 30, 40, 45, 60, 70, and 100 percent in 1996, 1997, 1998, 1999, 2002, and 2003, respectively. Eligibility is restricted to SE individuals who are the single owners of unincorporated businesses, with positive net profits, and who do not

have access to ESI.

The TRA86 amendments introduced exogenous changes in the price of HI for the SE relative to that the WS face. We empirically examine one-year labor market transitions using the following probit regression beginning with the decision to enter SE:

$$Entry_{i,t+1} = \delta RelPrem_{i,t+1} + X_{it}\theta + \phi IMRWS_{it} + Year_{it}\lambda + State_{it}\pi + \upsilon_{it}, \tag{3}$$

where $Entry$, $IMRWS$, $Year$, $State$, i, and t are defined as previously. $RelPrem$ refers to the predicted after-tax HI premium a worker would face if he chose to become SE in period $t+1$ divided by the value if he instead remained WS (i.e. $\frac{P_{SE}}{P_{WS}}$). In the next section, we explain how we calculate the premiums individuals face in each of these two employment states. To the extent that the more generous TRA86 tax deductions lowered the relative price of HI for the SE, we would expect δ to be negative, holding everything else constant. X also includes an individual's predicted relative earnings. This is the ratio of earnings predicted for period $t+1$ if an individual were to switch into SE relative to those he would receive if instead he remained WS. We follow Bruce (2000) in predicting an individual's $t+1$ earnings based on a set of controls.[9] The coefficient estimates from these regressions are used to predict the period $t+1$ earnings for our sample of men if they were to become SE or if they instead chose to remain in WS jobs.

The empirical framework we use to examine the effect of the relative after-tax HI premium on exits from SE into WS jobs is as follows:

$$Exit_{i,t+1} = \delta RelPrem_{i,t+1} + X_{it}\theta + \phi IMRSE_{it} + Year_{it}\lambda + State_{it}\pi + \upsilon_{it}. \tag{4}$$

All the explanatory variables are defined as in equation (3). We would expect the estimated coefficient on $RelPrem$ to be positive: as the relative after-tax price of health insurance increases, the rate of exit from SE would increase.

As a final exercise, we estimate a random-effects probit regression which addresses the likelihood of being SE for our entire sample by focusing on the effect of the relative after-tax HI premium:

$$SE_{i,t} = \delta RelPrem_{i,t+1} + X_{it}\theta + Year_{it}\lambda + State_{it}\pi + \mu_i + \nu_{it}, \tag{5}$$

[9]The results to this exercise can be obtained from the authors upon request.

where SE is an indicator for being SE; everything else is defined as before. The error term is now composed of two parts: the individual-specific time-invariant random effect (μ) which captures the unobserved individual heterogeneity while the error term (ν) is assumed to be independent and identically distributed with a zero mean and a finite variance. Thus, the random-effects probit controls for unobserved individual heterogeneity that is not captured by a standard probit regression. We expect δ to be negative in this model.[10]

3 Data

The data used in this paper come from the Current Population Survey (CPS). The CPS is a monthly survey sponsored by the Census Bureau and the Bureau of Labor Statistics (BLS). Each month the CPS surveys some 50,000 households ("occupied units") and is designed to represent the U.S. civilian, non-institutionalized population.[11] Respondents are asked questions about themselves and persons in the household who are ages 16 and above. The questions center on demographic characteristics and labor market activities but include other annual supplementary information as well (e.g., health insurance, tobacco use, computer ownership, etc.). This study uses data from the 1996-2007 CPS March supplements; the 1996 survey was the first year in which detailed questions concerning the source of HI coverage were asked. Because the labor market and HI status questions are retrospective with respect to the last calendar year, the data covers 1995-2006.

The CPS uses a 4-8-4 sampling scheme meaning that each household is in the survey for four consecutive months, out for the next eight, and then returns for the following four months. This survey design creates a longitudinal, albeit short, component called the Outgoing Rotation Group (ORG). The two-year panel is created by matching ORGs between consecutive survey

[10]Note that one can also estimate a random-effects probit regression where the dependent variable is either the entry or exit, as done in several papers (e.g., Madrian, 1994; Bruce, 2000). However, given the short nature of the ORG panel, we only observe at most one transition per individual in our two-year panel. Hence, we are unable to carry out such an exercise.

[11]Beginning in July 2001, the sample size increased to 60,000 occupied households.

years.[12] In a given survey, individuals are uniquely identified by two variables: a household identifier (HHID) and an individual line number within the household (LINENO). Across surveys, one needs to supplement these two variables with others in order to match individuals over time. Following Madrian and Lefgren (2000), we use gender, race, age, educational attainment, and foreign birth status to obtain a good match.

The analysis in this paper focuses on prime-age (ages 25-60) working (either WS or SE) men. In defining one's labor market status we considered the longest job held within the past year. This accords with the HI variables which are also retrospective with respect to the last calendar year. We consider individuals to be SE if they report SE as the longest job held within the past year and if their enterprise is unincorporated. For the empirical analysis, we exclude individuals who were working in agriculture, disabled, full-time students, in the Armed Forces as well as those who were unemployed or not in the labor force. The CPS HI questions are asked once a year in March and refer to coverage at any time during the previous calendar year. The CPS contains information on coverage from the following sources: 1) a private plan purchased through an employer (either as a policyholder or as a dependent); 2) a private plan purchased directly (either as a policyholder or as a dependent); 3) a private plan provided by someone outside of the household; 4) Medicare; 5) Medicaid; or 6) another type of plan (i.e. state-only plan, Military Health plan, and Indian Health Service).[13] In our analyses, the variable $OwnHI$ refers to category 1 if an individual is originally in WS employment and to category 2 if the individual is SE in period t.

The primary variable of interest, in addition to individual and spousal HI policy holding status, is the relative after-tax HI premium. We obtain average individual premium figures using the Medical Expenditure Panel Survey-Insurance Component (MEPS-IC). The Agency for Healthcare Research and Quality (AHRQ) make available annual tables from the MEPS-IC corresponding to 1996-2006 which list the average individual premiums per enrolled employee at private-sector establishments that offer HI. The figures are provided for each state and vary by firm size. For WS employees, we use the overall firm averages, by state and by year. The

[12]For the 12-year period we consider, more than a third of the individuals are in ORG.

[13]Note that these categories are not necessarily mutually exclusive.

AHRQ's MEPS does not have similar information for privately purchased non-group plans. In fact, obtaining meaningful and reliable average premium figures for individually purchased plans from any source is nearly impossible.[14] Since no reliable estimates exist, we proxy the premium of a plan purchased in the private non-group market with the MEPS-IC figures corresponding to firms employing less than 10 employees. These premiums reflect the best proxy for what a SE individual would face in the market for non-group HI.

Following Gruber and Poterba (1994), the after-tax HI premiums predicted for period $t+1$ are calculated as follows:

$$\text{After-tax HI premium} = \begin{cases} P_{WS} = I_{t+1} \times (1 - \tau_{t+1}) & \text{if WS in } t+1 \\ P_{SE} = T_{t+1} \times (1 - max(\beta, TRA_{t+1})\tau_{t+1}) & \text{if SE in } t+1, \end{cases} \tag{6}$$

where I is the employee's contribution to his HI plan and T is the total HI premium which represents both the employee's and the employer's contribution to the plan.[15] β is the fraction of the HI cost that can be claimed as an itemized deduction on one's income tax return.Individuals (both WS and SE) are allowed to deduct their HI premiums from their taxable income as long as the cost, together with other eligible medical care expenditures, constitute at least 7.5 percent of their adjusted gross income (AGI). τ is the individual's MTR on his predicted earned income which in part determines the value of the tax deduction. Clearly, the tax incentives are greater for those individuals at higher MTRs. We estimated the MTRs using the NBER's TAXSIM program. This program calculates individuals' MTRs using information reported on their tax returns including the tax year, state of residence, marital status, exemptions, various sources of income and transfers.[16] TRA_t is the deduction rate allowed by the TRA86 in each year (e.g., $TRA_{1996} = 0.3$).

[14]MEPS has a Household Component (MEPS-HC) which is a survey of individuals and families. The MEPS-HC asks the respondents, who report having coverage from an individual policy, what their out-of-pocket premiums are. This is a very small sample and hence cannot provide reliable summary statistics at the state-level for each year between 1995 and 2006.

[15]Note that this may not reflect the true cost of ESI due to the possible substitution between wages and fringe benefits (Levy, 1998; 2006) and the fact that some employees working for small firms are not able to pay for their premiums with pre-tax dollars (Gruber and McKnight, 2003).

[16]For more information on TAXSIM, see www.nber.org/taxsim or Feenberg and Coutts (1993).

The controls for the individual characteristics used in the analysis include age, its square, race (white, Black, and other), and ethnicity (Hispanic and other). We also control for whether an individual was born abroad. We include the following levels of completed schooling: high school graduate, some college, college degree, or advanced degree. Those with less than a high school degree are the omitted category. For the family characteristics, we include marital status and the number of children under age 18. Following Fairlie et al. (2008), we control for whether an individual owns his home along with his real interest, dividend, and rental income as measures of wealth. The job characteristics include controls for the major industry (mining, construction, manufacturing, transportation, trades, financial, services, and public sector) and occupation (managerial, professional specialty, sales, technical and administrative support, service, and blue collar) categories.

4 Results

Figure 1 shows the rate of SE, among working men, and the relative after-tax HI premium for 1995-2006. The TRA86 tax deductions in each year are listed at the bottom of the figure. The rate of SE averages about 7.5 percent during this period and the after-tax price of privately purchased non-group HI is about seven times that of group HI. Figure 2 shows the transitions in and out of SE for the same period. The average rate of entry from WS jobs into SE is 2.4 percent and the fraction of SE men who exit into WS jobs is about 29 percent. Overall, the entry and exit rates seem relatively stable over the period we consider. Additional evidence provided by Gumus and Regan (2008) shows that the composition of the WS and SE groups also remained generally unchanged over this timeframe. Tables 1a and 1b provide the entry and exit figures according to an individual's own or his spouse's HI status for the originally WS and SE men, respectively. Considering the one-year transitions during the period of our analysis, a larger fraction of the WS men who were not ESI policyholders entered SE (5.9 versus 1.3 percent). Similarly, a larger fraction of the SE men who were the policyholder of their own privately purchased HI plan were more likely to remain SE than to exit into WS jobs (75.3 versus 69.4 percent). For SE men, having a spouse who is the policyholder of her own ESI

seems to enable them to remain SE (74.0 versus 69.1 percent).

Table 2 provides the descriptive statistics for the men who were WS at the baseline (i.e. in period t). The first two columns present the figures for the overall sample while the next four columns divide the sample into those who remain WS and those who enter SE in period $t+1$. The last column provides the p-value for the t-test of statistically significant differences between these two subgroups. On average, those who enter SE are slightly older, more likely to be white and born abroad. Those who enter SE are more likely to be at the tails of the educational attainment distribution—having either not completed high school or having instead earned a graduate degree. There are also statistically significant differences in the industries in which the WS men were originally employed as well as their income from interest and rentals.

The overwhelming majority, 74.7 percent, of the sample indicates being in very good or excellent health, likely because we focus on prime-age working men who are not disabled. There are no differences between those who enter SE and those who remain WS in terms of their health status. For the entire sample of WS men, on average 75 percent report being the policyholder of ESI. This figure drops to 39.4 percent when we consider those who enter SE. The average annual after-tax price of HI for SE men, which reflects the TRA86 tax deductions, is \$2,971.[17] Comparatively, this figure is \$463 for WS men. Thus, the average relative after-tax HI premium is 6.8. Concerning the wives of the married WS men, 4.5, 74.7, and 20.8 percent are themselves SE, WS, and not working (NW), respectively. There seems to be evidence of assortive mating as the fraction of wives that is SE is larger for those men who enter SE. Overall, 37.6 percent of the married WS men have spouses who are the policyholders of their own ESI. Perhaps not surprising, this figure is larger for men who enter SE rather than for those who remain WS (45.3 and 37.4 percent, respectively).

Table 3 provides the descriptive statistics for those who were instead SE at the baseline. Again, the first two columns present the figures for the overall sample, while the next four columns divide the sample according to those who remained SE versus those who exited into WS jobs in period $t+1$. The results somewhat echo the findings from above. On average, those who remain in SE tend to be older. Blacks, Hispanics, those born outside of the U.S., and those

[17] All dollar figures are expressed in constant 2006 US\$ throughout the text and in the tables.

with more education are more likely to exit into WS employment. This latter finding could be due to the fact that traditionally, WS jobs tend to value and reward formal education more highly than do SE enterprises, which is consistent with the signaling hypothesis of education. Those who exit into WS jobs are less likely to be married and to own their home. On average 17.3, 62.4, and 20.3 percent of the wives of married SE men are SE, WS, and NW, respectively. It is interesting to note that a larger fraction of the married men who exit into WS employment have spouses who are NW. Overall, 44.8 percent of the wives are the policyholders of ESI; this figure is higher for those men who remain SE than for those who exit into WS jobs (46.4 versus 40.7 percent). There are again statistically significant differences between the groups in terms of industry and occupation in which they worked at the baseline. More importantly there are noticeable differences in the fraction of men who are the policyholders of a privately purchased HI plan. On average, 24.9 percent of those who remain SE report being the policyholders of a private HI plan, whereas the corresponding figure is 19.8 percent for those who exit into WS jobs.

Table 4 presents summary statistics at the baseline for all working men, both WS and SE in our ORG sample. The first two columns correspond to the entire sample, the next two columns refer to those who are WS, and the final two columns refer to the SE. Overall, 7.5 percent of the men are SE. On average, the SE men tend to be older, white, less educated, and more likely to be married. They are more likely to own their home and to have higher levels of rental income. About 45 percent of the SE men are married to a wife who is the policyholder of her own ESI; this figure is about 38 percent for the WS men. Nearly three-quarters of the men report being in excellent or very good health, and there are no statistically significant differences between those who are WS and those who are SE.

The estimates of the entry and exit probit equations can be found in Tables 5 and 6; Table 6 also includes the results from the random-effects probit model. The tables present the coefficient estimates, standard errors, and marginal effects. For presentation purposes, the estimated effects on the year, state, industry, and occupation dummies have been suppressed. Table 5 presents the estimated effects of individual and spousal HI on the decision to enter/exit SE. The first three columns provide the estimates of the entry equation (1) while the last three

columns correspond to the exit equation (2). For both analyses, we consider three samples: all men, married men, and married men in dual-earner families. A dual-earner family is one in which both the husband and wife are working. A possible problem with including all men in our sample is that $SpHI$ takes on the value of "0" for single men along with men whose wives are NW, working part-time, or are not policyholders of ESI. As pointed out by Kapur (1998), this non-comparability between the experimental and control groups may lead to inconsistent estimates. Thus, in our efforts to make these groups more comparable we divide the sample according to marital status.

We begin by considering all men in WS jobs in period t (Table 5, column 1); the sample size is nearly 70,000 persons. The individual and family characteristics that are statistically significant can be summarized as follows: individuals are more likely to enter SE if they are white, born abroad, more educated, and have higher interest income. The inverse Mills' ratio is statistically significant suggesting that it is important to correct for the initial conditions bias in these regressions. The estimated coefficient on $OwnHI$ is negative and statistically significant. Its marginal effect implies that a WS worker is 5.4 percentage points less likely to enter SE if he is the policyholder of ESI, all else being equal. Similarly, the estimated coefficient on $SpHI$ is negative and is also statistically significant. Its marginal effect suggests that the probability of entry is 0.9 percentage points lower when a WS man is married to a wife who is the policyholder of her own ESI. This possibly hints at the unobserved family characteristics in which both adults have their own ESI which is negatively related to the likelihood of entry. Both of these marginal effects are quite large since the average rate of entry for this sample is 2.4 percent.

The variable of interest is the interaction term between individual and spousal ESI. As expected, this term is positive and statistically significant. The positive sign on the interaction term indicates that the negative effect of $OwnHI$ on entry into SE is smaller, in absolute value, for men whose wives have ESI than for those whose wives do not have ESI. The naïve estimate of the effect of own ESI on entry into SE is the marginal effect associated with α_1. A corrected estimate can be obtained by summing the marginal effects associated with α_2 and α_3.[18] The

[18]This corrected estimate is derived by comparing how the effect of own ESI status varies between WS men

corrected DD estimate reveals a 0.44 percentage point decline in the average rate of entry. This implies that having own ESI reduces the probability of entry into SE by 18.2 percent given that the average rate of entry is 2.42 percent. Note that this effect is much smaller than the naïve estimate of $OwnHI$.

The second and third columns of Table 5 present the probit estimates of equation (1) for men who are married and for those who are married and in a dual-earner family, respectively. These specifications additionally control for whether the spouse is SE or WS (relative to NW). For the for dual-earners, we control for whether the wife is SE (relative to WS). Bruce (1999) cites two other reasons, besides assortive mating, why a husband's SE status could influence his wife's entry into SE. These include the formation of a family business and the intra-family flows of human and financial capital. He finds that having a husband with exposure to SE nearly doubles the probability that a woman enters SE, with the effects being most pronounced if the husband is actually SE at the time of the transition. Similarly, we find that the estimated coefficient associated with having a wife who is SE (WS) is positive (negative) and statistically significant.

The estimated coefficients and marginal effects for the variables of interest in columns 2 and 3 are similar to those in column 1 in terms of sign, statistical significance, and magnitude. For married men (in dual-earner families) the marginal effect on $OwnHI$ suggests that they are 5.9 (5.4) percentage points less likely to enter SE if they are the policyholders of ESI. As before the corresponding marginal effect on $SpHI$ is smaller and suggests a 0.8 (0.7) percentage point reduction. Again, the estimated interaction term is positive and statistically significant. For the subsample of married men in WS employment, the corrected DD estimate is 0.81 percentage points, which suggests that being the policyholder of an individual's own ESI plan reduces the probability of entry into SE by 33.7 percent. This is based on the average rate of entry which is 2.4 percent for this subsample. Further restricting the sample to those married men in dual-earner families yields a corrected DD estimate that is smaller than that corresponding to all married men. Given that the average entry rate is 2.34 for this group of men, we find that having one's own ESI as a policyholder leads to a 0.55 percentage point or a 23.5 percent

whose wives have ESI and those whose wives do not, i.e. $(\alpha_1 + \alpha_2 + \alpha_3) - (\alpha_1 + 0 + 0)$.

reduction in the rate of entry.

The results presented in columns 4-6 of Table 5 correspond to the probit estimates of equation (2). The analysis includes SE men in period t and focuses on their decision to remain SE versus exit into WS employment in period $t+1$. Column 4 presents to the specification for all SE men while the next two columns disaggregate the sample according to marital status. When we control for the spouses's employment status, we find evidence of assortive mating. To summarize the statistically significant effects from column 4, SE men are more likely to exit SE if they were born abroad, have more education, and if the relative earnings from SE compared to those from WS employment (as predicted for period $t+1$) are lower. The inverse Mills' ratio is again statistically significant.

The estimated coefficients associated with individual and spousal HI are both negative and statistically significant in columns 4-6 of Table 5. Based on the estimated marginal effect corresponding to $OwnHI$ (see column 4), as expected, an individual is less likely to exit SE if he is the policyholder of a private HI plan. The likelihood of exit from SE is reduced by 7.9 percentage points, all else equal. Considering that the average rate of exit is 29.2 percent, this naïve estimate corresponds to a 27.2 percent reduction in the rate of exit from SE. The effect of spousal ESI is quite large: an entrepreneur is 6.3 percentage points less likely to exit if his wife is the policyholder of ESI. The estimated interaction term is positive but statistically insignificant. As before, correcting the naïve estimate associated with $OwnHI$ amounts to summing together the marginal effects on $SpHI$ and the interaction term. Doing so yields an adjusted DD estimate of 0.9 percentage points or a three percent reduction in the rate of exit from SE. The results presented in column 5 and 6 are similar to these. The corrected DD estimates are larger in magnitude: 4.5 percent for the subsample of married men and 12.5 percent for the subsample of married men in dual-earner families, but the interaction term never gains statistical significance.

As discussed above, it is hard to argue that changes in an individual's own HI coverage are orthogonal to changes in his spouse's HI status, especially for the SE. That being the case, we exploit a different source of variation, namely the changes in the TRA86 HI tax deductions for the SE, which introduced exogenous changes in the relative after-tax HI premium during

this period. Table 6 presents the results corresponding to the estimation of equations (3), (4), and (5). Columns 1-3 correspond to the men who were WS at the baseline; we analyze whether they chose to enter SE in period $t+1$ or not. We find positive and statistically significant effects of being born abroad and income from interest on the likelihood of entering SE.

In terms of the variable of interest, we find a negative and statistically significant effect of the predicted relative after-tax HI premium on the probability of entering SE (see column 1). The marginal effect associated with $RelPrem$ implies that if the relative premium were to increase by one unit, the likelihood of entry would decrease by about 0.09 percentage points. Based on the average relative after-tax HI premium (6.84 from Table 3) and the average rate of entry (2.42 percent), a 15 percent increase in this relative price measure would decrease the rate of entry into SE by 3.7 percent. Columns 2 and 3 of Table 6 break the sample down by the ESI policy holding status. The relative after-tax premium loses statistical significance when we consider the former subsample but remains negative and gains even more statistical significance for the latter. The associated marginal effect for the men without any ESI implies a 0.56 percentage point reduction in the rate of entry into SE, which suggests a 9.5 percent decline. As explained above, this reduction corresponds to a 15 percent rise in the relative after-tax HI premium.

In column 4 of Table 6, we report the estimation results for equation (4) for the entire sample of SE men. Being born abroad, having a graduate degree, higher predicted relative earnings, and owning a home have statistically significant effects on the rate of exit from SE. The relative after-tax HI premium is statistically insignificant, however. Finally, the last column in Table 6 presents the random-effects probit estimates of equation (5). The dependent variable indicates whether a working man is SE or not (i.e. WS). Taking full advantage of the panel nature of the ORG sample and controlling for individual-specific random effects produces many statistically significant effects. An individual is more likely to be SE if he is older, white, born abroad, and less educated. In terms of the family characteristics, the likelihood of SE is increased if this individual is not married, has more children, owns a home, and has lower dividend income but more rental income. The coefficient on the predicted relative earnings is positive and statistically significant. The variable of interest, the relative after-tax HI premium,

is negatively associated with the likelihood of being SE as expected, but this effect is statistically insignificant.

5 Conclusions

The job-lock literature has shown that HI factors influence labor market mobility, at least for certain groups of workers. Our paper draws its inspiration from this literature and attempts to fill in the gap in terms of the role HI has on entrepreneurship. For this purpose, we examine entries from WS employment into SE, exits from SE into WS jobs, as well as the likelihood of being SE. We use two identification strategies in analyzing the role of HI. The first focuses on the effect of an individual's own HI status has in combination with alternative sources of HI coverage (i.e. that through a spouse). We find that both individual and spousal HI have negative and statistically significant effects on the likelihood of entry and exit. For WS men, the corrected DD estimate implies that being the policyholder of one's own ESI decreases the rate of entry into SE by 18-34 percent. Among SE men, privately purchased individual HI decreases the rate of exit by 3-13 percent, however, this finding is not statistically significant. Second, we exploit the exogenous nature of the TRA86 amendments which allowed SE entrepreneurs to deduct their HI premiums from their taxable income. We find that the relative after-tax HI premium, between the SE and the WS, reduces entry into SE. Even for the subsample of WS men who lack ESI, which produces the largest estimate, the effect is still rather small. The relative after-tax premium never gains statistical significance in the models of exit from SE and the likelihood of being SE. This pattern is similar to that reported by Heim and Lurie (2008).

The sole instance in which we find evidence that HI factors into the labor market transitions from WS jobs into SE is in the DD framework which relies on variation in individual and spousal ESI. All of our models that instead use the TRA86 amendments produce economically insignificant estimates regardless of their statistical significance. This pattern is consistent with Gruber and Madrian's (2004) review of the job-lock literature as they largely attribute the mixed findings to the source of identification used. Papers using alternative sources of HI as the means of identification tend to find evidence in support of job-lock whereas models that

rely on other measures (e.g., individual/family health, medical expenses) do not. The changes in the TRA86 tax deductions are arguably more exogenous than differences in spousal HI. Thus, we are more confident in these estimates. Note that the lack of response could also be due to the difficulties associated with obtaining private non-group HI above and beyond the higher premiums. In an effort to "level the playing field" between the WS and the SE, Congress passed the TRA86, and its subsequent amendments, which enabled the SE to deduct their HI premiums from their taxable income. However, even the full deductibility of HI premiums may not compensate for high search costs, potential denial, exclusion restrictions on pre-existing conditions, etc. in the private non-group market (Pauly and Nichols, 2002; Blumberg and Nichols, 2004; Gumus and Regan, 2008).

Holtz-Eakin et al. (1996) also find limited to no response of the decision to enter SE to HI factors. They point out that this finding may not be particularly surprising as the transition to entrepreneurship involves substantial risks. The lack of HI coverage may be one of the risks such individuals are willing to undertake and may not constitute a major impediment in entry decisions. Note that even though Holtz-Eakin et al. (1996) use the Panel Study of Income Dynamics (PSID) and the Survey of Income and Program Participation (SIPP), which follow individuals for longer periods than the CPS does, they still focus year-to-year labor market transitions. They argue that the effects of HI will be greater in the short-run than in the long-run. In this respect, the fact that the ORG in the CPS is a short panel does not constitute a particular concern. A longer panel, however, would to some extent enable us to address the duration of the SE enterprises.[19] For example, the observed exits from SE may be mostly for the newly formed SE ventures as they tend to be especially volatile in their first few years (e.g., see Evans and Leighton, 1989; Holtz-Eakin et al., 1994; Taylor, 1999; Bruce and Schuetze, 2004). Without further information on the nature of SE, it is difficult to judge if such exits are undesirable or not. However, SE may merely be serving as a relatively temporary state

[19]The CPS does contain limited information on tenure for a subsample of the population contained in the January (i.e. the Contingent Worker Supplement) and the February supplements (i.e. the Worker Supplement). Merging our data with these supplements reduces our sample size drastically and introduces selection bias as it requires a respondent to be in the survey on three separate occasions, rather than just two.

of employment enabling an individual to bridge two jobs. Although we control for industry and occupation in our analysis, we do not have detailed information about the nature of SE. Despite these shortcomings, the CPS does include detailed information on a respondent's HI policyholder status, along with an opportunity to observe the labor market transitions for a large sample of WS, and especially SE individuals. The job-lock literature has attracted considerable attention to the WS population but entrepreneurial activity is an important consideration as well. This paper serves as one of the first steps in addressing the importance of HI as it relates to entrepreneurship.

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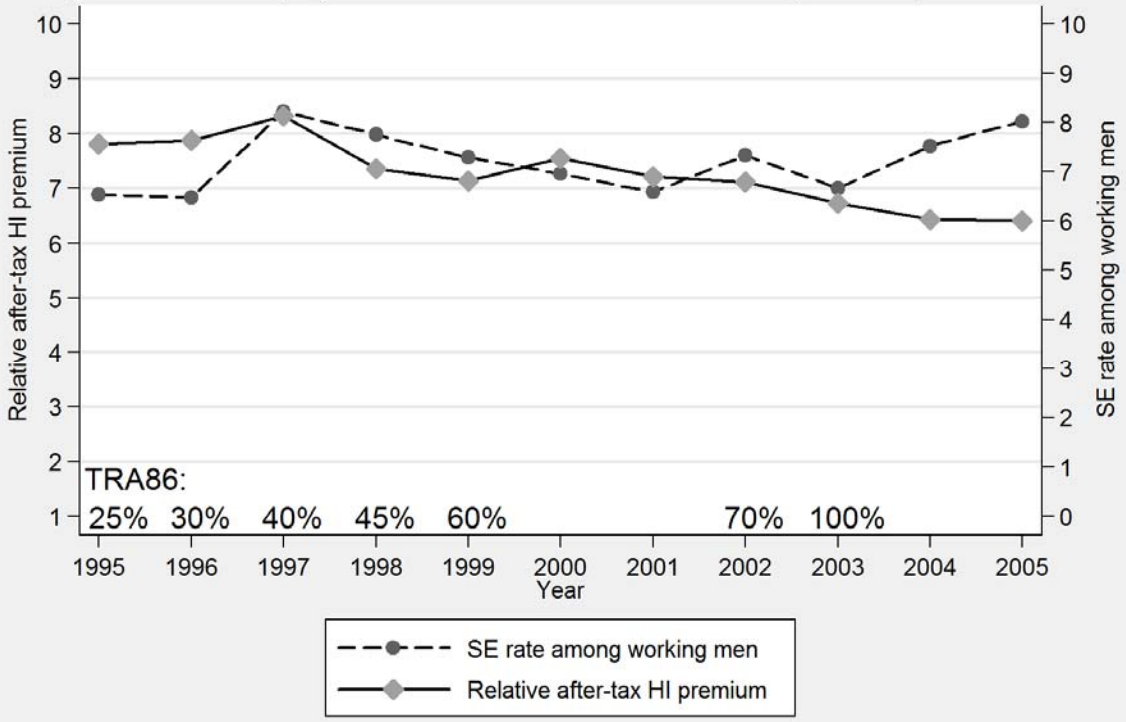
Figure 1: Self-employment rate and relative after-tax HI premium, 1995-2006



Note: The TRA86 tax deductions are indicated above each year.

Figure 2: Transitions in and out of self-employment, 1995-2006

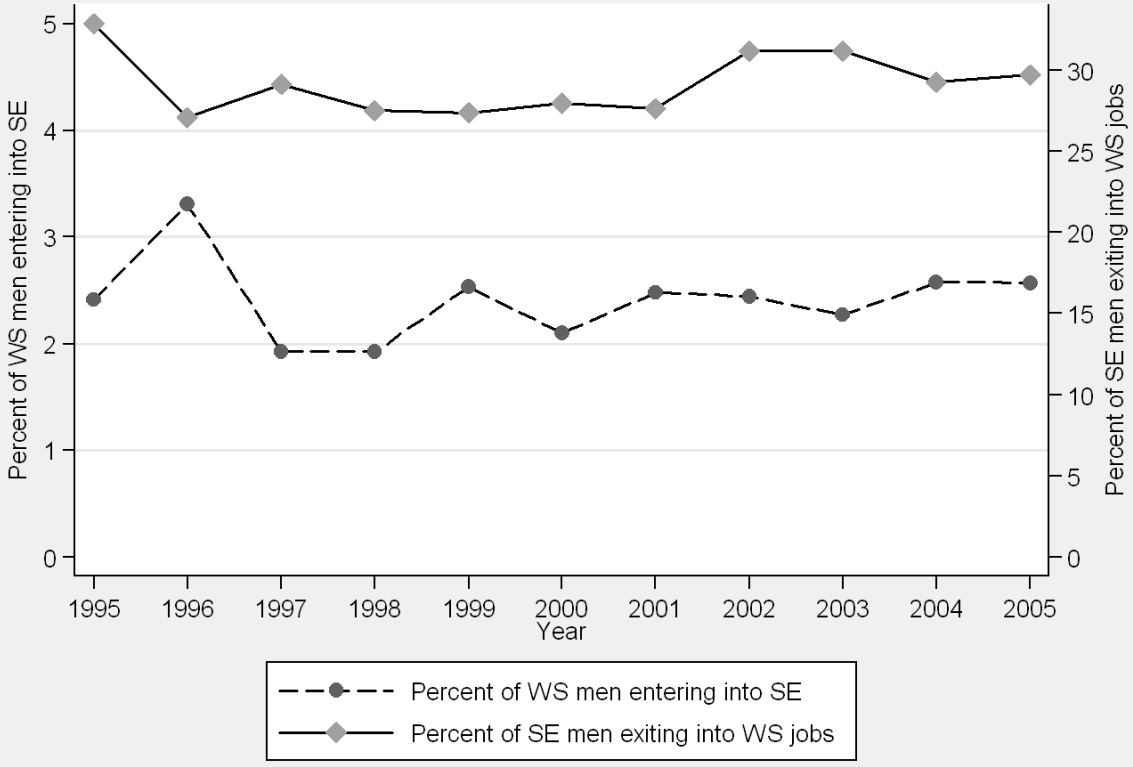


Table 1a: Transition patterns for WS men, 1995-2006

		Period *t*+1	
	N	% remain WS	% enter into SE
Period *t*			
WS	69,920	97.58	2.42
WS; own ESI policyholder	52,438	98.73	1.27
WS; not own ESI policyholder	17,482	94.14	5.86
WS; spouse ESI policyholder[1]	19,609	97.11	2.89
WS; spouse not ESI policyholder[1]	50,311	97.77	2.23

Table 1b: Transition patterns for SE men, 1995-2006

		Period *t*+1	
	N	% remain SE	% exit into WS
Period *t*			
SE	5,674	70.80	29.20
SE; own private HI policyholder	1,328	75.30	24.70
SE; not own private HI policyholder	4,346	69.42	30.58
SE; spouse ESI policyholder[1]	1,936	74.02	25.98
SE; spouse not ESI policyholder[1]	3,738	69.13	30.87

Notes: [1]Single individuals are included in the category of those who do not have spousal ESI.

Table 2: Baseline descriptive statistics for the WS men (probit sample)

	(1) All		(2) Remain WS		(3) Enter into SE		p-value[4] of the t-test
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	(2) vs (3)
Remain WS	0.976	0.154	1.000	0.000	0.000	0.000	-
Enter into SE	0.024	0.154	0.000	0.000	1.000	0.000	-
Individual characteristics							
Age	41.934	9.128	41.905	9.127	43.066	9.112	0.000
Race/Ethnicity							
White	0.883	0.321	0.883	0.322	0.898	0.303	0.059
Black	0.066	0.249	0.067	0.250	0.043	0.203	0.000
Other race	0.051	0.219	0.050	0.219	0.059	0.236	0.108
Hispanic	0.080	0.271	0.080	0.271	0.082	0.275	0.726
Born abroad	0.100	0.301	0.100	0.300	0.134	0.341	0.000
Education							
Years of schooling	13.849	2.731	13.849	2.726	13.879	2.956	0.655
Less than high school	0.067	0.251	0.067	0.250	0.083	0.277	0.008
High school degree	0.316	0.465	0.316	0.465	0.319	0.466	0.807
Some college	0.270	0.444	0.270	0.444	0.238	0.426	0.003
Bachelor's degree	0.225	0.417	0.225	0.417	0.228	0.420	0.718
Graduate degree	0.122	0.328	0.122	0.328	0.132	0.338	0.232
Health status: excellent or very good	0.747	0.435	0.747	0.435	0.740	0.439	0.536
Family characteristics							
Married	0.745	0.436	0.746	0.436	0.740	0.439	0.629
Number of children under age 18	0.935	1.153	0.935	1.152	0.943	1.197	0.785
Own home	0.822	0.382	0.822	0.382	0.820	0.385	0.771
Interest income (in 1,000s)[1]	0.871	4.320	0.860	4.257	1.306	6.354	0.000
Dividend income (in 1,000s)[1]	0.621	3.584	0.622	3.588	0.579	3.414	0.625
Rental income (in 1,000s)[1]	0.335	3.730	0.330	3.711	0.551	4.436	0.016
Spouse characteristics							
Spouse's labor market status[2]							
SE	0.045	0.206	0.044	0.205	0.069	0.253	0.000
WS	0.747	0.435	0.748	0.434	0.704	0.457	0.000
NW	0.208	0.406	0.208	0.406	0.228	0.419	0.084
Spouse ESI policyholder[2]	0.376	0.484	0.374	0.484	0.453	0.498	0.000
Job characteristics							
Industry							
Construction	0.107	0.309	0.104	0.305	0.238	0.426	0.000
Manufacturing	0.219	0.413	0.222	0.416	0.081	0.273	0.000
Trade	0.159	0.366	0.159	0.366	0.159	0.366	0.984
Services	0.268	0.443	0.266	0.442	0.326	0.469	0.000
Other industries	0.247	0.432	0.249	0.432	0.195	0.396	0.000
Occupation							
Managerial and professional	0.379	0.485	0.379	0.485	0.374	0.484	0.668
Blue collar	0.378	0.485	0.378	0.485	0.389	0.488	0.337
Other occupations	0.242	0.429	0.243	0.429	0.237	0.425	0.566
Relative earnings	1.054	0.222	1.054	0.222	1.060	0.221	0.267
Own ESI policyholder	0.750	0.433	0.759	0.428	0.394	0.489	0.000
Relative after-tax HI premium	6.791	1.737	6.791	1.737	6.779	1.738	0.783
SE after-tax HI premium (in 1,000s)[1,3]	2.971	0.538	2.971	0.538	2.957	0.529	0.278
WS after-tax HI premium (in 1,000s)[1,3]	0.463	0.136	0.463	0.136	0.463	0.138	0.871
N	69,920		68,229		1,691		

Notes: [1]All $ figures are expressed in constant 2006 US$. [2]Means for spousal characteristics are conditional on being married. [3]These variables do not correspond to the baseline but to the predictions for the second period as described in the text. [4]p-values of the t-statistic refer to the test of differences in means between those who remain WS and those who enter SE.

Table 3: Baseline descriptive statistics for the SE men (probit sample)

	(1) All		(2) Remain SE		(3) Exit into WS		p-value[4] of the t-test
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	(2) vs (3)
Remain SE	0.708	0.455	1.000	0.000	0.000	0.000	-
Exit into WS	0.292	0.455	0.000	0.000	1.000	0.000	-
Individual characteristics							
Age	44.529	8.694	45.016	8.515	43.349	9.007	0.000
Race/Ethnicity							
White	0.920	0.271	0.928	0.259	0.902	0.297	0.001
Black	0.030	0.172	0.026	0.160	0.040	0.197	0.005
Other race	0.049	0.216	0.046	0.209	0.057	0.233	0.068
Hispanic	0.064	0.244	0.059	0.236	0.075	0.264	0.021
Born abroad	0.094	0.292	0.084	0.278	0.119	0.324	0.000
Education							
Years of schooling	13.791	2.943	13.678	2.919	14.066	2.983	0.000
Less than high school	0.084	0.277	0.089	0.285	0.069	0.254	0.013
High school degree	0.330	0.470	0.339	0.473	0.309	0.462	0.029
Some college	0.261	0.439	0.264	0.441	0.253	0.435	0.380
Bachelor's degree	0.195	0.396	0.187	0.390	0.212	0.409	0.029
Graduate degree	0.131	0.337	0.120	0.325	0.156	0.363	0.000
Health status: excellent or very good	0.737	0.440	0.737	0.440	0.737	0.440	0.978
Family characteristics							
Married	0.762	0.426	0.768	0.422	0.747	0.435	0.081
Number of children under age 18	0.938	1.205	0.926	1.199	0.967	1.221	0.243
Own home	0.854	0.353	0.865	0.341	0.828	0.377	0.000
Interest income (in 1,000s)[1]	0.973	4.604	0.980	4.461	0.958	4.936	0.869
Dividend income (in 1,000s)[1]	0.628	3.565	0.594	3.413	0.709	3.909	0.267
Rental income (in 1,000s)[1]	0.818	5.591	0.855	5.687	0.728	5.351	0.437
Spouse characteristics							
Spouse's labor market status[2]							
SE	0.173	0.378	0.179	0.384	0.158	0.365	0.090
WS	0.624	0.484	0.630	0.483	0.610	0.488	0.090
NW	0.203	0.402	0.191	0.393	0.233	0.423	0.002
Spouse ESI policyholder[2]	0.448	0.497	0.464	0.499	0.407	0.491	0.001
Job characteristics							
Industry							
Construction	0.303	0.460	0.326	0.469	0.248	0.432	0.000
Manufacturing	0.049	0.215	0.050	0.218	0.045	0.208	0.447
Trade	0.125	0.331	0.119	0.324	0.139	0.346	0.043
Services	0.365	0.482	0.354	0.478	0.393	0.489	0.005
Other industries	0.158	0.365	0.151	0.358	0.174	0.380	0.030
Occupation							
Managerial and professional	0.376	0.484	0.400	0.490	0.366	0.482	0.000
Blue collar	0.411	0.492	0.366	0.482	0.430	0.495	0.018
Other occupations	0.213	0.410	0.235	0.424	0.204	0.403	0.010
Relative earnings	1.045	0.211	1.038	0.210	1.062	0.213	0.000
Own private HI policyholder	0.234	0.423	0.249	0.432	0.198	0.399	0.000
Relative after-tax HI premium	6.839	1.784	6.879	1.825	6.739	1.677	0.007
SE after-tax HI premium (in 1,000s)[1,3]	2.964	0.542	2.967	0.544	2.957	0.538	0.505
WS after-tax HI premium (in 1,000s)[1,3]	0.460	0.139	0.459	0.141	0.463	0.134	0.313
N	5,674		4,017		1,657		

Notes: [1]All $ figures are expressed in constant 2006 US$. [2]Means for spousal characteristics are conditional on being married. [3]These variables do not correspond to the baseline but to the predictions for the second period as described in the text. [4]p-values of the t-statistic refer to the test of differences in means between those who remain SE and those who exit into WS.

Table 4: Baseline descriptive statistics for all working men (random-effects probit sample)

	(1) All		(2) WS		(3) SE		p-value[4] of the t-test
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	(2) vs (3)
WS	0.925	0.263	1.000	0.000	0.000	0.000	-
SE	0.075	0.263	0.000	0.000	1.000	0.000	-
Individual characteristics							
Age	42.128	9.122	41.934	9.128	44.529	8.694	0.000
Race/Ethnicity							
White	0.886	0.318	0.883	0.321	0.920	0.271	0.000
Black	0.064	0.244	0.066	0.249	0.030	0.172	0.000
Other race	0.051	0.219	0.051	0.219	0.049	0.216	0.620
Hispanic	0.079	0.269	0.080	0.271	0.064	0.244	0.000
Born abroad	0.100	0.300	0.100	0.301	0.094	0.292	0.136
Education							
Years of schooling	13.845	2.748	13.849	2.731	13.791	2.943	0.125
Less than high school	0.069	0.253	0.067	0.251	0.084	0.277	0.000
High school degree	0.317	0.465	0.316	0.465	0.330	0.470	0.026
Some college	0.269	0.443	0.270	0.444	0.261	0.439	0.156
Bachelor's degree	0.222	0.416	0.225	0.417	0.195	0.396	0.000
Graduate degree	0.123	0.329	0.122	0.328	0.131	0.337	0.067
Health status: excellent or very good	0.746	0.435	0.747	0.435	0.737	0.440	0.109
Family characteristics							
Married	0.747	0.435	0.745	0.436	0.762	0.426	0.006
Number of children under age 18	0.935	1.157	0.935	1.153	0.938	1.205	0.840
Own home	0.825	0.380	0.822	0.382	0.854	0.353	0.000
Interest income (in 1,000s)[1]	0.879	4.342	0.871	4.320	0.973	4.604	0.088
Dividend income (in 1,000s)[1]	0.622	3.583	0.621	3.584	0.628	3.565	0.896
Rental income (in 1,000s)[1]	0.371	3.903	0.335	3.730	0.818	5.591	0.000
Spouse characteristics							
Spouse's labor market status[2]							
SE	0.054	0.227	0.045	0.206	0.173	0.378	0.000
WS	0.738	0.440	0.747	0.435	0.624	0.484	0.000
NW	0.208	0.406	0.208	0.406	0.203	0.402	0.418
Spouse ESI policyholder[2]	0.382	0.486	0.376	0.484	0.448	0.497	0.000
Job characteristics							
Industry							
Construction	0.122	0.327	0.107	0.309	0.303	0.460	0.000
Manufacturing	0.206	0.404	0.219	0.413	0.049	0.215	0.000
Trade	0.157	0.364	0.159	0.366	0.125	0.331	0.000
Services	0.275	0.447	0.268	0.443	0.365	0.482	0.000
Other industries	0.241	0.428	0.247	0.432	0.158	0.365	0.000
Occupation							
Managerial and professional	0.379	0.485	0.379	0.485	0.376	0.484	0.655
Blue collar	0.380	0.485	0.378	0.485	0.411	0.492	0.000
Other occupations	0.240	0.427	0.242	0.429	0.213	0.410	0.000
Relative earnings	1.043	0.234	1.044	0.235	1.038	0.222	0.070
Own ESI policyholder	0.709	0.454	0.750	0.433	-	-	-
Own private HI policyholder	0.057	0.232	-	-	0.234	0.423	-
Relative after-tax HI premium	6.948	1.830	6.943	1.829	7.009	1.841	0.009
SE after-tax HI premium (in 1,000s)[1,3]	2.875	0.522	2.876	0.521	2.871	0.524	0.516
WS after-tax HI premium (in 1,000s)[1,3]	0.439	0.129	0.439	0.129	0.435	0.130	0.019
N	75,594		69,920		5,674		

Notes: [1]All $ figures are expressed in constant 2006 US$. [2]Means for spousal characteristics are conditional on being married.
[3]These variables do not correspond to the baseline but to the predictions for the second period as described in the text. [4]p-values of the t-statistic refer to the test of differences in means between between those who are WS versus SE.

Table 5: Effect of health insurance on entry and exit; probit results (DD)

	ENTRY			EXIT		
	All WS men	Married WS men	Married WS men in dual-earner families	All SE men	Married SE men	Married SE men in dual-earner families
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Own HI policyholder[1]	-0.7358***	-0.7769***	-0.7466***	-0.2527***	-0.2725***	-0.2312***
	(0.0296)	(0.0384)	(0.0475)	(0.0498)	(0.0620)	(0.0752)
	[-0.0544]	[-0.0587]	[-0.0539]	[-0.0794]	[-0.0841]	[-0.0704]
Spouse ESI policyholder	-0.1794***	-0.1531***	-0.1378***	-0.1957***	-0.2234***	-0.2274***
	(0.0359)	(0.0416)	(0.0465)	(0.0468)	(0.0557)	(0.0592)
	[-0.0087]	[-0.0076]	[-0.0069]	[-0.0628]	[-0.0716]	[-0.0727]
Own HI policyholder[1] ×	0.2221***	0.2669***	0.2234***	0.1595	0.1742	0.1173
Spouse ESI policyholder	(0.0493)	(0.0551)	(0.0625)	(0.1313)	(0.1370)	(0.1475)
	[0.0131]	[0.0157]	[0.0124]	[0.0540]	[0.0586]	[0.0384]
	{0.0202}	{0.0206}	{0.0172}	{0.0541}	{0.0594}	{0.0420}
Age	0.0088	-0.0271*	-0.0440**	-0.0329	-0.0151	-0.0243
	(0.0124)	(0.0154)	(0.0174)	(0.0231)	(0.0287)	(0.0327)
	[0.0002]	[-0.0064]	[-0.0154]	[-0.0089]	[-0.0057]	[-0.0084]
Age squared	-0.4403	3.2195*	4.9918***	2.6975	0.9418	1.8684
	(1.3973)	(1.7171)	(1.9351)	(2.4822)	(3.0523)	(3.4727)
	[-0.0228]	[0.1649]	[0.2512]	[0.8814]	[0.3043]	[0.5941]
Black	-0.1355**	-0.0627	-0.0616	0.0793	0.1580	0.2906
	(0.0663)	(0.0839)	(0.0962)	(0.1380)	(0.1663)	(0.1852)
	[-0.0063]	[-0.0031]	[-0.0030]	[0.0264]	[0.0530]	[0.0988]
Hispanic	-0.0860	-0.0612	-0.0815	-0.0998	0.0092	-0.0202
	(0.0613)	(0.0730)	(0.0867)	(0.1127)	(0.1296)	(0.1520)
	[-0.0042]	[-0.0030]	[-0.0038]	[-0.0318]	[0.0030]	[-0.0064]
Born abroad	0.1139***	0.1292***	0.1467***	0.1340*	0.0932	0.0549
	(0.0399)	(0.0463)	(0.0550)	(0.0714)	(0.0827)	(0.0999)
	[0.0064]	[0.0073]	[0.0082]	[0.0450]	[0.0307]	[0.0177]
High school degree	0.1014**	0.0570	0.0439	0.0944	0.1875*	0.2030*
	(0.0491)	(0.0609)	(0.0729)	(0.0810)	(0.0994)	(0.1193)
	[0.0054]	[0.0030]	[0.0022]	[0.0311]	[0.0615]	[0.0657]
Some college	0.1011*	-0.0265	-0.0836	0.0813	0.1618	0.2271
	(0.0560)	(0.0718)	(0.0848)	(0.0937)	(0.1192)	(0.1389)
	[0.0055]	[-0.0013]	[-0.0041]	[0.0268]	[0.0533]	[0.0742]
Bachelor's degree	0.1770***	0.0733	0.0009	0.1363	0.2389*	0.2608*
	(0.0620)	(0.0778)	(0.0912)	(0.1050)	(0.1306)	(0.1500)
	[0.0100]	[0.0039]	[0.0000]	[0.0454]	[0.0800]	[0.0863]
Graduate degree	0.1408**	0.1999**	0.1638*	0.4508***	0.4683***	0.4078***
	(0.0706)	(0.0816)	(0.0973)	(0.1166)	(0.1321)	(0.1568)
	[0.0080]	[0.0117]	[0.0092]	[0.1577]	[0.1624]	[0.1392]
Relative earnings[2]	0.1174	-0.2289	-0.3139*	-0.3897**	-0.2173	-0.0395
	(0.0962)	(0.1558)	(0.1863)	(0.1786)	(0.2698)	(0.3117)
	[0.0061]	[-0.0117]	[-0.0158]	[-0.1273]	[-0.0702]	[-0.0125]
Married	-0.0105	-	-	0.0319	-	-
	(0.0335)			(0.0549)		
	[-0.0005]			[0.0104]		
Number of children under age 18	0.0032	0.0064	0.0021	0.0076	0.0076	-0.0028
	(0.0124)	(0.0136)	(0.0159)	(0.0205)	(0.0224)	(0.0261)
	[0.0002]	[0.0003]	[0.0001]	[0.0025]	[0.0025]	[-0.0009]
Own home	0.0518	0.0687	0.0600	-0.0810	-0.1465**	-0.1248
	(0.0317)	(0.0428)	(0.0508)	(0.0543)	(0.0723)	(0.0870)
	[0.0026]	[0.0034]	[0.0029]	[-0.0269]	[-0.0487]	[-0.0408]
Interest income (in 1,000s)[3]	0.0069***	0.0057**	0.0034	-0.0021	-0.0020	0.0006
	(0.0020)	(0.0025)	(0.0031)	(0.0041)	(0.0046)	(0.0052)
	[0.0004]	[0.0003]	[0.0002]	[-0.0007]	[-0.0007]	[0.0002]
Dividend income (in 1,000s)[3]	-0.0037	-0.0046	-0.0066	0.0053	0.0047	0.0071
	(0.0033)	(0.0038)	(0.0049)	(0.0051)	(0.0061)	(0.0067)
	[-0.0002]	[-0.0002]	[-0.0003]	[0.0017]	[0.0015]	[0.0023]
Rental income (in 1,000s)[3]	0.0035	0.0035	0.0036	-0.0024	-0.0084*	-0.0093*
	(0.0024)	(0.0028)	(0.0032)	(0.0034)	(0.0044)	(0.0048)
	[0.0002]	[0.0002]	[0.0002]	[-0.0008]	[-0.0027]	[-0.0030]
Spouse SE	-	0.1925***	0.2902***	-	-0.1407**	-0.1235*
		(0.0600)	(0.0568)		(0.0704)	(0.0647)
		[0.0115]	[0.0184]		[-0.0443]	[-0.0384]
Spouse WS	-	-0.0972***	-	-	-0.0163	-
		(0.0353)			(0.0617)	
		[-0.0052]			[-0.0053]	
Inverse Mills' ratio[4]	1.2260**	1.2256**	1.4167**	0.5112*	0.3883	0.3486
	(0.5084)	(0.5883)	(0.6586)	(0.2935)	(0.3348)	(0.3710)
	[0.0634]	[0.0628]	[0.0713]	[0.1670]	[0.1255]	[0.1109]
Pseudo R-squared	0.106	0.110	0.107	0.046	0.048	0.046
Log-likelihood	-7,119.70	-5,255.28	-4,094.44	-3,269.74	-2,464.51	-1,935.82
N	69,919	52,122	41,277	5,674	4,323	3,446
Average rate of entry/exit	2.42%	2.40%	2.34%	29.20%	28.61%	27.54%

Notes: Coefficients are reported with standard errors in parentheses and marginal effects in brackets. The marginal effects on the interaction term that are calculated using the Ai and Norton (2003) method is reported in braces. Each model also includes a constant term, state- and year-effects as well as industry and occupation dummies which are not reported. Excluded categories are non-Hispanic whites, less than high school degree, and spouse NW. * Significant at 10%. ** Significant at 5%. *** Significant at 1%. [1]Own HI policyholder status refers to ESI in columns 1-3 and to privately purchased HI plans in columns 4-6. [2]These variables do not correspond to the baseline but to the predictions for the second period as described in the text. [3]All $ figures are expressed in constant 2006 US$. [4]The inverse Mills' ratio to *IMRWS* in columns 1-3 and to *IMRSE* in columns 4-6 as described in the text.

Table 6: Effect of relative after-tax HI premium on entry, exit, and the likelihood of being SE

	ENTRY			EXIT	SE
Estimation method:	**Probit**			**Probit**	**RE probit**
	All WS men	WS men with ESI	WS men without ESI	All SE men	All men
Variable	(1)	(2)	(3)	(4)	(5)
Relative after-tax HI premium[1]	-0.0164*	0.0037	-0.0508***	-0.0244	-0.0020
	(0.0095)	(0.0134)	(0.0146)	(0.0156)	(0.0083)
	[-0.0009]	[0.0001]	[-0.0056]	[-0.0080]	[-0.0000]
Age	-0.0017	0.0080	0.0014	-0.0358	0.0612***
	(0.0120)	(0.0184)	(0.0171)	(0.0231)	(0.0112)
	[-0.0001]	[0.0001]	[0.0001]	[-0.0086]	[0.0003]
Age squared	0.6546	0.0219	0.1150	3.1265	-3.4086***
	(1.3545)	(2.0547)	(1.9552)	(2.4762)	(1.2888)
	[0.0355]	[0.0007]	[0.0127]	[1.0267]	[-0.0190]
Black	-0.1024	-0.2078**	-0.0757	0.0723	-0.5457***
	(0.0640)	(0.1023)	(0.0897)	(0.1380)	(0.0545)
	[-0.0051]	[-0.0054]	[-0.0080]	[0.0242]	[-0.0016]
Hispanic	-0.0500	-0.1779*	0.0206	-0.0912	-0.3186***
	(0.0591)	(0.0966)	(0.0827)	(0.1125)	(0.0474)
	[-0.0026]	[-0.0047]	[0.0023]	[-0.0293]	[-0.0012]
Born abroad	0.1854***	0.1559***	0.0971*	0.1484**	0.1152***
	(0.0383)	(0.0592)	(0.0545)	(0.0710)	(0.0394)
	[0.0116]	[0.0056]	[0.0113]	[0.0502]	[0.0007]
High school degree	0.0053	0.0143	0.1512**	0.0719	-0.0585
	(0.0473)	(0.0879)	(0.0609)	(0.0808)	(0.0443)
	[0.0003]	[0.0005]	[0.0173]	[0.0237]	[-0.0003]
Some college	-0.0190	-0.0604	0.2289***	0.0470	-0.1174**
	(0.0539)	(0.0962)	(0.0718)	(0.0934)	(0.0482)
	[-0.0010]	[-0.0018]	[0.0275]	[0.0155]	[-0.0006]
Bachelor's degree	0.0349	0.0278	0.2731***	0.0894	-0.2549***
	(0.0599)	(0.1019)	(0.0831)	(0.1046)	(0.0506)
	[0.0019]	[0.0009]	[0.0344]	[0.0298]	[-0.0012]
Graduate degree	-0.0053	0.0258	0.1850*	0.4155***	-0.3537***
	(0.0684)	(0.1110)	(0.0999)	(0.1163)	(0.0590)
	[-0.0003]	[0.0008]	[0.0229]	[0.1455]	[-0.0014]
Relative earnings[1]	0.0584	0.0674	0.1883	-0.3799**	0.1893**
	(0.0939)	(0.1449)	(0.1358)	(0.1784)	(0.0899)
	[0.0032]	[0.0021]	[0.0208]	[-0.1248]	[0.0011]
Married	-0.0423	-0.0813*	-0.0186	-0.0255	-0.1058***
	(0.0295)	(0.0446)	(0.0432)	(0.0509)	(0.0282)
	[-0.0023]	[-0.0027]	[-0.0021]	[-0.0084]	[-0.0006]
Number of children under age 18	0.0063	0.0237	-0.0140	0.0197	0.0500***
	(0.0119)	(0.0174)	(0.0177)	(0.0203)	(0.0104)
	[0.0003]	[0.0007]	[-0.0015]	[0.0065]	[0.0003]
Own home	-0.0089	0.0842*	0.0074	-0.1130**	0.1258***
	(0.0303)	(0.0499)	(0.0414)	(0.0539)	(0.0295)
	[-0.0005]	[0.0025]	[0.0008]	[-0.0379]	[0.0006]
Interest income (in 1,000s)[2]	0.0062***	0.0076***	0.0053	-0.0020	-0.0022
	(0.0020)	(0.0024)	(0.0036)	(0.0041)	(0.0020)
	[0.0003]	[0.0002]	[0.0006]	[-0.0007]	[-0.0000]
Dividend income (in 1,000s)[2]	-0.0053	-0.0043	-0.0016	0.0046	-0.0053**
	(0.0033)	(0.0040)	(0.0060)	(0.0051)	(0.0025)
	[-0.0003]	[-0.0001]	[-0.0002]	[0.0015]	[-0.0000]
Rental income (in 1,000s)[2]	0.0036	0.0023	0.0046	-0.0030	0.0099***
	(0.0024)	(0.0032)	(0.0039)	(0.0034)	(0.0017)
	[0.0002]	[0.0001]	[0.0005]	[-0.0010]	[0.0001]
Inverse Mills' ratio[3]	1.0804**	0.1357	2.3343***	0.5461*	-
	(0.4918)	(0.7084)	(0.7440)	(0.2929)	
	[0.0585]	[0.0043]	[0.2583]	[0.1793]	
Pseudo R-squared	0.056	0.053	0.060	0.041	0.108
Log-likelihood	-7,517.58	-3,380.63	-3,667.85	-3,285.55	-29,874.16
N	69,919	52,438	17,481	5,674	75,593
Average rate of entry/exit/SE	2.42%	1.27%	5.86%	29.20%	7.53%

Notes: Coefficients are reported with standard errors in parentheses and marginal effects in brackets. Each model also includes a constant term, state- and year-effects as well as industry and occupation dummies which are not reported. Excluded categories are non-Hispanic whites and less than high school degree. * Significant at 10%. ** Significant at 5%. *** Significant at 1%. [1]These variables do not correspond to the baseline but to the predictions for the second period as described in the text. [2]All $ figures are expressed in constant 2006 US$. [3]The inverse Mills' ratio corresp[redacted]s to in columns 1-[redacted]l to in column 4 as described in the text.