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SELECTION IN EMPLOYER PROVIDED HEALTH INSURANCE ☆

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Abstract

Approximately one in four workers aged 25-40 who lacked private health insurance in 2010 in the US did not enroll in employer-provided health insurance (EPHI) that was available to them. In this paper, I study selection in EPHI among eligible employees using data from the Medical Expenditures Panel Survey from 2001 to 2010 and from the National Longitudinal Survey of Youth '97 in 2010. Controlling for firm and job characteristics that proxy for the choice of plans and premiums faced by workers, I find that individuals aged 25-40 who decline EPHI and remain privately uninsured have significantly worse health and health behaviors than those who enroll. No correlation between health and insurance take up is found in the 41-64 age group. The advantageous selection among young employees is in part explained by education and family income, short expected job tenure, and by Medicaid crowding out EPHI for low socioeconomic status workers who have higher health risk. Preferences for health risk contribute very little and preferences for financial risk do not play a significant role. The results shed light on the characteristics of uninsured workers in the US and on the interaction between private and public health insurance, with implications for the design of health care reform.

Keywords: Health, Health Insurance, Asymmetric Information, Risk Selection
JEL classification: D82, I11, I12, I13

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I. Introduction

Employer provided health insurance (EPHI) is the main source of health insurance for working age individuals in the US. However, 19.2% of workers were not covered by private health insurance in 2010, and this fraction was higher among workers aged 25-40, equal to 24.4%.[1] It is generally believed that adverse selection contributes to a relatively large fraction of young, healthy and uninsured individuals.[2] This belief partly motivated one of the key features of the Affordable Care Act (ACA), the insurance mandate, to require individuals to buy insurance or pay a fine.

The group of uninsured workers is diverse, and it is difficult to assess the importance of adverse selection because one cannot easily distinguish in existing survey data between workers who desire EPHI but cannot obtain a job that offers it, and those who do not desire it and optimally sort into jobs not offering EPHI where wages might be higher.[3] There is a large literature studying and modeling these two types of workers in various contexts where adverse selection is important. Examples are the research areas of job search and wage determination, job mobility, and assessment of the ACA (e.g. Gilleskie and Lutz (2002); Dey and Flinn (2005); Brügemann and Manovskii (2010); Pashchenko and Porapakkarm (2013); Aizawa and Fang (2015)). However, the uninsured group also contains a third type of workers who decline available EPHI offers. Very little research exists on this group despite it being easily identifiable using survey data and significant in size.[4] This paper fills this gap in the literature.

[1] These figures are based on my own calculations from the MEPS.

[2] The classic adverse selection model of Rothschild and Stiglitz (1976) and Wilson (1977) predicts a positive correlation between insurance coverage and risk type.

[3] Individuals could also buy health insurance on the individual market. I do not study this market since it was very small and insurance purchased individually was a poor substitute for EPHI. Premiums were very high and the insurance often did not cover pre-existing conditions.

[4] Blumberg and Nichols (2001), Cunningham (2002), Bernard and Selden (2006) and Monheit and Vistnes (2008) are a few papers that study the characteristics of workers who decline available EPHI. I discuss how my paper differs from this literature at a later stage.

Using data from the Medical Expenditure Panel Survey (MEPS) in 2010, I find that 8.0% of eligible employees in the 25-40 age group did not enroll in EPHI and remained privately uninsured.[5] These accounted for 24% of privately uninsured workers, and for 19.2% of privately uninsured individuals in the 25-40 age group. These statistics are surprising given that employers pay for large shares of health premiums, on average 81% of the singles premium and 70% of the family premium (Kaiser Family Foundation 2010). These costs are most likely passed on to **all** employees in the form of lower wages (e.g., Dey and Flinn (2005)).[6]

The aim of this paper is to study the role of asymmetric information in the decision to take up insurance among workers offered EPHI. The main question of interest is whether workers who decline EPHI and remain privately uninsured are significantly higher or lower risk than those who take up EPHI, conditional on the insurance costs faced and the types of health plans offered by their employers. While a vast existing literature studies the link between health risk and EPHI plan choice conditional on EPHI take up, my paper is the first to study asymmetric information in the take up decision itself.[7][8][9]

[5]Overall, 5.7% of workers offered EPHI declined coverage and remained privately uninsured in 2010. This fraction is 10.3% in the 25-30 age group and declines to only 3.6% in the 51-64 age group.

[6]The high fraction of workers declining EPHI suggests that sorting in the labor market is imperfect. This is consistent with Monheit and Vistnes (1999) and Hirth et al. (2006) who provide evidence that relatively high fractions of workers are mismatched in terms of jobs offering their desired mix of wages relative to health benefits.

[7]Employees with EPHI can choose the quantity and type of insurance coverage by selecting different plans from a menu of available options. The literature studying plan selection almost always finds evidence of adverse selection that is quantitatively large, with higher risk employees sorting into less restrictive or more comprehensive plans (e.g., Cutler and Reber (1998); Cutler and Zeckhauser (2000); Einav et al. (2010); Handel (2013); Bajari et al. (2014)). A notable exception is Bundorf et al. (2012).

[8]Other papers study asymmetric information by comparing the groups of insured and uninsured workers, but not narrowing it down to those offered EPHI. Cardon and Hendel (2001), who focus on singles, and Bundorf et al. (2010) do not find evidence of adverse selection in this sense.

[9]Two related papers, Blumberg and Nichols (2001) and Bernard and Selden (2006), compare the health of workers who decline EPHI with those who enroll, but not conditioning on any insurance related characteristics (i.e., price and type) nor on any personal characteristics. Their results are mixed, finding that workers who decline EPHI are more likely to be in poor health, but are less likely to have high cost medical conditions.

I study both *ex ante* and *ex post* selection, examining the relationships between insurance take up and general health in the same period, risky health behaviors, and medical expenditures. *Ex ante* adverse selection predicts that those who are higher risk (i.e., those who are in worse health) are more likely to take up EPHI, everything else equal. *Ex post,* moral hazard predicts that those covered by EPHI are more likely to engage in risky health behaviors and have higher demand for medical care due to lower prices. Together, these forces predict a positive correlation between insurance coverage and *ex post* losses (i.e., medical expenditures) (e.g., Chiappori and Salanie (2000); Finkelstein and McGarry (2006); Fang et al. (2008); Fang and Wu (2016)). A growing literature explores this "positive correlation property," finding mixed results in different markets. Contrary to predictions, several insurance markets are found to exhibit either no selection or **advantageous** selection, meaning that those who have more insurance are in fact lower risk.[10] Examples include the auto insurance market in France (Chiappori and Salanie (2000)), the U.S. Medigap market (Fang et al. (2008)), the US long-term care insurance market (Finkelstein and McGarry (2006) and Cutler et al. (2008)) and the supplementary private health insurance market in Australia (Buchmueller et al. (2013) and Doiron et al. (2008)).

I use data from the MEPS from 2001 to 2010 and from the National Longitudinal Survey of Youth '97 (NLSY97) in 2010, both of which allow me to identify EPHI eligible workers and observe their health insurance status by source. Unfortunately, the EPHI premiums and health plan types offered are not observed in either data set for individuals who decline EPHI, so I cannot conduct the analysis conditioning directly on these characteristics. However, these have been shown to be highly correlated with firm and job characteristics such as firm size, industry, region, hourly wage, and union status among others (Kaiser Family Foundation 2010). I use an extensive list of these characteristics as proxies, and find that

[10] Hemenway (1990) was the first paper to discuss advantageous selection.

conditional on these, workers who decline coverage are in significantly worse health than those who take up EPHI among those aged 25 to 40 in the MEPS. I confirm these findings using a sample of EPHI eligible individuals aged 26-30 in the NLSY97 in 2010. I find no correlation between EPHI take up and health status in the 41-64 age group.

A lack of positive correlation between insurance and risk could be explained by the presence of multidimensional private information (e.g., Finkelstein and Poterba (2004) and Finkelstein and McGarry (2006)). While selection based on risk type implies a positive correlation between risk and insurance coverage, this could be offset by selection based on advantageous characteristics that are positively correlated with insurance coverage but negatively correlated with risk. The characteristics could be either private information, or could be observable to the insurer but not used in setting prices (Fang et al. (2008)). Characteristics found to be advantageous in other markets are risk aversion, education, income, wealth, longevity expectations, financial planning horizons, cognitive ability, financial numeracy and mental health (e.g., Finkelstein and McGarry (2006); Fang et al. (2008); Bolhaar et al. (2012); Buchmueller et al. (2013)).[11]

I find that in the case of selection in EPHI, education contributes strongly to the observed *ex ante* advantageous selection among eligible workers aged 25-40. Conditional on education, family income and other demographics that play a more minor role, the negative correlation between EPHI take up and health risk declines by approximately half. Interestingly, in the 41-50 age group, I find that conditional on these, workers who take up EPHI

[11] Fang et al. (2008) find that income, education, longevity expectations, financial planning horizons, and cognitive ability are sources of advantageous selection in the Medigap market, and that cognitive ability is the most significant source among these. Finkelstein and McGarry (2006) provide suggestive evidence that wealth and precautionary behavior are advantageous characteristics for selection in the long term care insurance market. Buchmueller et al. (2013) find that the advantageous selection observed in the market for private health insurance in Australia is driven by the effect of risk aversion, the ability to make complex financial decisions and income. Cutler et al. (2008) focus on the tolerance for risk as a source of advantageous selection in several markets and find it to be important in the long term care market. Bolhaar et al. (2012) find that mental health causes advantageous selection in the market for supplementary private health insurance in Ireland.

are in worse health. Using the NLSY97, I find that cognitive ability, personality traits, views towards discipline, parental education, and parenting styles are also advantageous characteristics, although they play a relatively small role in explaining selection.

I also conduct a detailed analysis of the role of risk preferences in EPHI selection. David de Meza (2001) argue that risk type and risk aversion are both private information, and that risk averse individuals are more likely to buy insurance while also taking more precautionary actions to reduce their risk. Risk preferences have been emphasized as a main source of advantageous selection in the U.S. long term care market and the Australian supplementary health insurance market (Cutler et al. (2008) and Buchmueller et al. (2013)). The role of risk preferences in EPHI selection is particularly interesting because this aspect is important in evaluating the consequences of the ACA. For example, if risk preferences were a significant source of advantageous selection, it might be optimal to keep risk loving individuals out of the EPHI market rather than encouraging them to join through subsidies and the insurance mandate.[12]

A critical implicit assumption in this literature is that there exists a common risk taking trait that affects both health behaviors and insurance decisions. In this paper, I distinguish between the two types of risk preferences that could potentially matter for selection in health insurance: health and financial risk preferences.[13] If insurance decisions are primarily

[12] David de Meza (2001) show that taxing insurance would be beneficial as it would drive out the reckless types, resulting in a strict Pareto gain under certain conditions.

[13] Previous literature has been limited by the sparse information on risk preferences available in most major surveys. The only direct measure of risk preferences available in most surveys is from hypothetical lifetime income gamble questions. This measure captures most closely the concept of financial risk aversion. Using this measure, Fang et al. (2008) find that risk preferences do not contribute to advantageous selection in the Medigap market, as those who are less risk tolerant buy more insurance but are not particularly healthy. I also find that this measure of risk taking does not contribute to selection in EPHI. Most studies however take an indirect approach and proxy for risk tolerance using observed behaviors: smoking, drinking, exercise, job-based mortality risk, preventive health care, and use of seat belts (e.g., Cutler et al. (2008); Doiron et al. (2008); Buchmueller et al. (2013)). These behaviors most likely reflect health risk preferences. However, these behaviors directly affect health and medical expenditures. Therefore, it is problematic to use them as proxies for risk aversion when studying the relationship between health insurance and health related outcomes.

driven by preferences for financial risk, and if financial and health risk preferences are not positively correlated, then we do not expect risk preferences to contribute to advantageous selection. I take advantage of the NLSY97 where respondents are asked to self-rate their willingness to take risks in different contexts, including health and financial, on a scale from 0 to 10. I provide evidence that these self-rated measures are valid in the sense that they correctly predict actual behavior in their respective contexts.

I find that preferences for risk taking in the health and financial contexts are in fact very different and cannot be captured by a common risk taking trait.[14] While they have a moderate positive correlation, they have very different relationships with health behaviors, health, health transitions, and health insurance decisions. There is no clear reason for either health or financial risk preferences to contribute to advantageous selection in health insurance markets. How each of them is related to selection is a question I explore empirically in this paper.

I find that a lower willingness to take health risk is associated with better health behaviors (i.e., drinking, smoking, exercise, diet, sleep and preventive care), better health, better health transitions and a higher probability of taking up EPHI, after accounting for an extensive list of controls. Therefore, health risk preferences contribute to advantageous selection. However, I find that their contribution is quantitatively very small. On the other hand, a lower willingness to take financial risk is associated with worse health behaviors (with the exception of drinking), **worse** health and worse health transitions. Surprisingly, financial risk preferences are not significantly associated with EPHI take up. The results suggest that workers value EPHI as an input in health production rather than as insurance

[14] Weber et al. (2002) have also found that individuals' risk preferences are highly domain specific, and that the correlation between risk taking in the health and financial domains is positive but weak. On the other hand, Dohmen et al. (2011) find evidence supporting a common underlying risk trait using German data. In Online Appendix A, I provide an in depth analysis of risk preferences in different contexts, discussing differences between Dohmen et al. (2011) and my analysis.

against the financial risk associated with bad health. This is consistent with the findings that insurance improves access to medical care in the US. For example, health providers can choose to not provide care to the uninsured (The Kaiser Family Foundation (2015)).

In addition, I find that among young workers aged 25-40, those who take up EPHI have better health behaviors in terms of smoking, diet, and sleep than those who decline it, controlling for the same large set of firm and job characteristics. No differences are found in terms of exercise, drinking, or seat belt use. These results indicate that those who take up EPHI are lower risk despite possible *ex ante* moral hazard where the presence of insurance induces riskier behavior. I also find that those who take up EPHI receive more basic preventive care, although this could be a result of *ex post* moral hazard in the sense that insurance lowers the price of care and induces higher utilization.

Despite being healthier and having better health behaviors, I find that workers who take up EPHI have higher total medical expenditures (in the 25-40 age group) compared to those who decline it. I do not rule out explanations based on *ex post* moral hazard or selection on moral hazard (Einav et al. (2013)). However, the higher medical expenditures in the EPHI group could also be due to a higher demand for preventive care all else equal, which would be consistent with the results on the broad mix of health behaviors that indicate that those with EPHI invest more in their health.

There are several mechanisms that contribute to explain the results. First, I find that education and family income are advantageous characteristics. This finding is consistent with the theory that better educated and higher income individuals value the future more, having a higher present discounted value of future lifetime utility (e.g., Murphy and Topel (2006); Hall and Jones (2007); Cutler and Lleras-Muney (2008); Ozkan (2014)). Thus, they have higher incentives to invest in health in order to protect their future: they have better health behaviors (including higher use of preventive care which contributes to higher medical expenditures) and are more likely to take up EPHI as a form of health investment.

These differences across education groups could also arise due to knowledge and cognitive ability, family background, and social networks (Cutler and Lleras-Muney (2010)).

Second, I find that the *ex ante* advantageous selection is in part explained by the fact that Medicaid crowds out EPHI especially for low socioeconomic (SES) workers who are in worse health. Previous literature has already shown that Medicaid crowds out private health insurance (e.g., Cutler and Gruber (1996) and Cunningham (2002)). Cunningham (2002) shows that among EPHI eligible workers, low-income persons living in states with more expansive eligibility for Medicaid were more likely to decline employer coverage in favor of public coverage. I find that when I exclude workers covered by public health insurance from the analysis, evidence of *ex ante* advantageous selection remains among young employees, but the degree of this selection is weaker.

Medicaid could also crowd out EPHI demand for workers who do not qualify for it yet, but might anticipate to receive it in the future. The Medicaid eligibility criteria was stringent prior to the ACA, so most individuals earning income were unlikely to qualify for it. For this reason, Medicaid discourages labor force participation as workers have an incentive to leave employment in order to qualify for it (Pashchenko and Porapakkarm (2016)). I find that employees who declined EPHI and remained uninsured (both privately and publicly) had higher probabilities of transitioning to non-employment and of becoming Medicaid recipients a year later. This supports the possibility that low SES employees who are more likely to be high risk and have low labor force attachment find it optimal to decline EPHI, anticipating that when health problems become more serious, they can exit employment and qualify for Medicaid.

Third, I find that even among workers who remain employed, those who decline EPHI and remain privately uninsured in one year are more likely to change jobs in the following year. This is consistent with Fang and Gavazza (2011) who show that shorter job tenures are linked to lower health investments by the employee-employer pair since they do not

accrue the full benefits of these investments.[15]

This paper contributes to several areas of research. First, it contributes to the literature studying the characteristics of the uninsured in the US prior to the ACA. Second, it contributes to the literature on asymmetric information in health insurance markets, bringing attention to relatively younger age groups than those studied in previous literature. Third, the findings on the role of education and family income as advantageous characteristics are important for the literature studying the SES health gradient. Fourth, it contributes to the literature studying the interaction between public and private insurance by showing that Medicaid crowding out EPHI contributes to advantageous selection in EPHI (e.g., Cutler and Gruber (1996) and Brown and Finkelstein (2008)). Finally, it contributes to the specific literature on risk preferences and selection in health insurance, showing it is important to consider context specific risk taking preferences.

The paper is organized as follows: section II provides the background information on EPHI; section III describes the MEPS and the NLSY97; section IV discusses the methodology; section V presents the results; and section VI concludes.

II. Background on Employer Provided Health Insurance in the US

Employer provided health insurance is the primary source of health insurance for working age individuals in the US. Fifty-nine percent of workers were covered by health plans offered by their employer in 2010. Sixty-nine percent of firms reported offering health benefits and approximately 79% of workers in these firms were eligible for enrolling in these plans (The Kaiser Family Foundation and the Health Research and Educational Trust (2010)).

[15] In their model, the employee under invests in health due to wage compression, meaning he or she does not accrue the full benefits of the health investment if changing the job in the future.

Most firms that offer health benefits (84%) offer only one type of health plan, with larger firms being more likely to offer more than one type.[16] The majority (58%) of covered workers were enrolled in preferred provider organizations (PPOs), followed by health maintenance organizations (HMOs) (19%), high-deductible health plans with savings option (HDHP/SOs) (13%), point-of-service (POS) plans (8%), and conventional plans (1%).[17] The typical length of an insurance contract is one year (Brügemann and Manovskii (2010)).

In 2010 the average total premium for an employer provided insurance plan was $5,049 for single coverage and $13,770 for family coverage. The variation in premiums across different types of plans and across firm characteristics is relatively small. The most expensive single plan is the PPOs at $5,239 per year and the least expensive is the HDHP/SOs at $4,470. The most expensive family plan is the HMO at $14,125 and the least expensive is the HDHP/SOs at $12,384. Variation in average premiums across regions, firm size, industry, share of older workers and unionization is generally within just a few hundred dollars.

This premium was heavily subsidized by the employer who paid on average 81% of the single premium and 70% of the family premium. The variation in the share of the premium paid by the employer is fairly large. Sixteen percent of workers with single coverage and 5% of workers with family coverage worked for firms that paid 100% of the premium. Thirty-four percent of covered workers contributed at least $1,079 annually (120% of the average worker contribution) for single coverage, while 42% of covered workers had an annual worker contribution of less than $719 (80% of the average worker contribution).

[16] All statistics presented in this section are from the 2010 Annual Survey of Employer Health Benefits, in The Kaiser Family Foundation and the Health Research and Educational Trust (2010).

[17] These plans differ in how much additional costs workers face when they use health care services. PPOs and POS plans are more likely to have deductibles (these are on average $675 for PPOs and $1,048 for POS for singles), while HMOs are less likely (and if they do, they are on average $601 for singles). HDHP/SOs have the highest deductibles (by definition) at $1,903 for singles. However, most covered workers do not have to meet the deductible before preventive care, physician office visits, or prescription drugs are covered.

Employer provided health insurance is group insurance and is regulated by federal law. As summarized in Brügemann and Manovskii (2010), "the Health Insurance Portability and Accountability Act (HIPAA) explicitly prohibits all group health plans from applying different eligibility rules, offering different benefits, or charging a different premium to any individual within a group on the basis of 'health factors' including, among others, health status, medical condition, claims experience, medical history, and genetic information. HIPAA applies to employers of all sizes and provides most stringent protections at the federal level against discriminating individual workers on the basis of health, both with respect to coverage and premiums. In addition, HIPAA contains privacy provisions that prohibit group health plans from disclosing health information of individual workers to employers for any employment-related actions or decisions." Since discrimination is prohibited, the EPHI market is ideal for studying asymmetric information in insurance take up among eligible employees.

Health plans and premiums depend on the pool of employees within firms. Most large employers self-insured. Other employers purchased group insurance from insurance carriers. In this case, the extent of risk-rating is uncertain (i.e., the extent to which premiums adjust to reflect the expected medical expenditures of the group). While no direct evidence exists, Brügemann and Manovskii (2010) provide indirect evidence that risk rating is far from complete.

The Kaiser Family Foundation's 2010 Annual Survey on employer health benefits provides a detailed study of how health plans and premiums varied with firm characteristics. It finds that firm size was one of the most important determinants. Other important characteristics were industry, region, share of older workers, share of low wage workers, and whether workers were unionized. While variation in average premiums across these characteristics was relatively small, the variation in the share of the premium paid by the workers was fairly large.

The employee share of the premium was on average higher in firms with many low wage workers and in firms that had no union workers. The average annual worker contribution was similar across workers in small and large firms. However, the variation in the share of the premium paid by the worker was larger among those in small firms, with many small firms paying 100% of the premium but many others paying less than 50% of the premium. The employee share could also depend directly on workers' wages and 13% of covered workers were in firms that varied worker premium contributions by wage level.

III. Data

I use the MEPS and the NLSY97 data sets which contain information on whether EPHI was offered by the respondents' employers and whether they enrolled in it. The MEPS has the advantages of containing individuals of all working ages, having a large sample size, and containing information on medical expenditures. The NLSY97 has the advantage of containing very rich information on personal and family background characteristics as well as context specific risk preferences. However, it has a smaller sample size, respondents are only between 26 and 30 years old in 2010, and it does not contain information on medical expenditures.

III.A. The Medical Expenditures Panel Survey

The MEPS is a set of large-scale surveys of families and individuals, their medical providers, and employers. The survey uses an overlapping panel design in which data is collected through a preliminary contact followed by a series of five rounds of interviews over a 2 and a half year period. A new panel enters the survey every year. I use data covering

the years 2001 to 2010.[18]

I use the MEPS Household Component (HC) which collects data from a sample of civilian non-institutionalized families and individuals drawn from a nationally representative sub-sample of households. MEPS collects detailed information for each person in the household on demographic characteristics, health conditions, health status, use of medical services, health insurance coverage, income, employment and medical expenditures.[19]

III.B. The National Longitudinal Survey of Youth 1997

The NLSY97 surveyed a sample of 8,984 American youths born between 1980 and 1984. This cohort has been interviewed annually from 1997-2011 and biennially thereafter. I use data from year 2010 when all key variables of interest are available, including the self-reported context specific risk taking preferences. I use several variables from the respondents' past, such as personality traits, parenting styles experienced, longevity expectations, academic scores and family characteristics during childhood and adolescence. All reported statistics are obtained using the custom created cross-sectional sampling weights for year 2010.

III.C. Key variables

Health Insurance The MEPS contains variables on private health insurance held during each round of interview as well as health insurance held at a current main job, health

[18]Key variables describing health and health behaviors are missing before 2001 (e.g., BMI and chronic conditions). Some variables describing employment are also missing prior to 2001 (e.g., whether the job is temporary).

[19]The MEPS also contains an Insurance Component (IC) where employers of MEPS HC jobholders are interviewed and asked about health insurance offerings, premiums, employee contributions to premiums and other plan details for their establishment as a whole. This type of data would be ideal for this study, however, the IC is unsuitable because it is only linked to respondents in the 1996-2001 HC who identified the employer as their main employer or secondary employer that was the source of their health insurance. Therefore, this information is not available for respondents who have declined the EPHI.

insurance offered through a current main job, and variables on whether there was a choice of health plans through the current main job in each round of interview.

Similarly, the NLSY97 contains several variables that allow us to determine the respondents' insurance status, the source of insurance, whether they were offered EPHI by each of their employers and whether they accepted or rejected each offer, the reason for rejection, and whether they could have obtained health coverage through their spouse's employer. These variables from both data sets are described in detail in Online Appendix B.

General Health I construct a single variable capturing general health by combining information on (1) self-assessed health (on a scale from 1 to 5), (2) BMI, (3) mental health, and (4) the number of chronic health conditions reported.[20] In both data sets, I perform factor analysis on these four variables (after they have been standardized) using all individuals for whom information is available, using their sampling weights. I obtain a single factor with a mean of zero and standard deviation of one, where higher values indicate worse health. Online Appendix B provides details on the variables used and the factor loadings. This constructed general health variable captures health status in the same time period as that in which health insurance status is measured.[21]

Health Behaviors The MEPS contains information on the following health behaviors: smoking, exercise, seat belt use and preventive care. The NLSY97 contains a more extensive list of behaviors. I group these and combine them into six variables representing different areas of interest: smoking, drinking, exercise, diet, sleep, and preventive care. Online Appendix B describes the variable construction in detail. I re-code all variables such that

[20] In the NLSY97, the mental health variable is constructed through factor analysis on variables measuring the frequency the respondent felt downhearted, depressed, nervous, calm and happy. In the MEPS, I use the variable measuring perceived mental health.

[21] However, in the MEPS, BMI and the number of chronic conditions are first available only in Round 3. These are unlikely to change much within a year. To check for sensitivity, I also conduct the analysis using only the self-reported health measure from Round 1 (Online Appendix B).

higher values are associated with more risky health behaviors. The behaviors are measured in the same time period as the health insurance variables when possible. In the MEPS, some behaviors are measured in Rounds 2 or 3 when they are first available (i.e., smoking, seat belt use, flu shot and the frequency of doctor check-ups).

Risk Preferences The MEPS contains a single self-reported measure of risk taking where individuals report how likely they are to take risks relative to an average person on a scale from 1 to 5.

The NLSY97 is the only US data set that contains context specific risk preference questions in addition to detailed information on health and health insurance. In year 2010 only, the survey asks respondents to assess their willingness to take risks in regards to the following areas: general, driving, finances, work, health, faith in people, romance, major life changes, and gambling. For each area, they are asked:

> "People can behave differently in different situations. How would you rate your willingness to take risks in the following areas? For each situation, rate your willingness from 0 to 10, where 0 means "unwilling to take any risks" and 10 means "fully prepared to take risks."'

Note that differences in the willingness to take risk in various contexts could reflect: (1) risk aversion, (2) risk perceptions, (3) how the individual values different outcomes, and/or (4) optimal choices when balancing a portfolio of risky assets in different areas of life (e.g., balancing health against financial risk).[22] Distinguishing between these is beyond the scope of this paper.

In addition, the NLSY97 contains four standard hypothetical income gamble questions designed to elicit risk preferences. Each question asks respondents to choose between two

[22]The importance of risk perceptions has been highlighted in Weber et al. (2002) and Dohmen et al. (2011).

jobs that offer different income streams with different probabilities. These questions are very similar to those found in other surveys such as the Panel Study of Income Dynamics (PSID) and the Health and Retirement Study (HRS), and are described in detail in Online Appendix A. The responses to these questions are combined into a single variable that contains four categories. Category I is the least willing to take risk (respondents in this category always opt for a job that guarantees the current family income), and category IV is the most willing to take risks (respondents in this category always opt for a job that offers the possibility of higher or lower income for life, with some probability).

IV. Methodology

Testing for selection in insurance markets requires that we examine whether among a set of individuals who are offered coverage options at identical prices, those who buy more insurance have higher expected costs than those who do not (Einav and Finkelstein (2011)). I use the constructed general health variable as a measure of *ex ante* medical risk to determine whether selection is *ex ante* adverse or advantageous.

I conduct the analysis using sub-samples from the MEPS and NLSY97 that include only EPHI eligible individuals. Unfortunately neither survey contains information on the types of EPHI plans offered or their prices.[23] This has two implications. First, I cannot study selection in specific types of EPHI. Instead, I study selection in EPHI in general, comparing those who take up their employer's EPHI offer with those who reject it and remain privately uninsured.[24]

Second, I would like to examine the relationship between health and insurance take

[23]The MEPS only contains this information for individuals who accepted their employer's EPHI, and only for 1996-2001.

[24]I exclude workers who reject their employer's offer but have other private health insurance. The great majority of these individuals have EPHI from another family member. Only a negligible fraction (2.4%) of those who decline their employer's EPHI buy non-group insurance.

up conditioning directly on the types of health plans offered and the premiums faced by workers. Since these variables are not available, I proxy for them using an extensive list of firm and job characteristics that have been shown to be related: firm size, industry, union membership, region, urban/rural status, whether the job is full time or part time, whether it is temporary, and hourly wages (see Section II). The fraction of older workers within firms has also been found to be important, and I proxy for it using the respondent's own age group. In MEPS, I am also able to control for whether there was a choice of health plans offered by the employer.

I also study the relationships between insurance take up and health behaviors, and between insurance take up and total medical expenditures. The role of moral hazard is discussed in these contexts.

IV.A. Sample construction in the MEPS

In MEPS, I construct a sub-sample that contains individuals aged 25 to 64 who respond positively when asked whether health insurance was offered through a current main job in Round 1 of interview, which covers a period of approximately 3 months. They are then categorized as insured if they report having health insurance at their current main job, and categorized as uninsured if they do not meet this condition as well as reporting they do not hold any other private health insurance in the same round. All other individuals are excluded. I use pooled data from 2001 to 2010.

IV.B. Sample construction in the NLSY97

The NLSY97 sub-sample contains individuals who were offered EPHI in 2010 by their own employer. Individuals are categorized as insured if they report having health insurance in 2010 where the primary source of this insurance was their own employer. Individuals are

categorized as not having insurance if they reported having declined the EPHI that was made available to them, for reasons other than that they were covered by another plan, had a pre-existing condition, or had not worked for this employer long enough. All others are excluded from this sub-sample. Among those who decline EPHI and remain privately uninsured, 75% report having declined insurance because it was too expensive, 9% say they do not need health insurance, and 16% report other unknown reason for declining it.

In both the MEPS and the NLSY97 sub-samples, I exclude workers who are self-employed, without a valid industry, or in the armed forces. In sensitivity analysis, I consider several alternative ways of constructing the sub-samples: (1) excluding all individuals who report declining EPHI and who have Medicaid; (2) excluding those who report "other" as the reason for declining EPHI (NLSY97 only); (3) keeping new or experienced jobholders only, with job tenures shorter or longer than 3 years; (4) keeping only individuals with low family incomes or excluding them; and (5) keeping only workers in small or large firms.

IV.C. Econometric strategy

To study selection in EPHI, I run an OLS regression of the constructed general health variable on a dummy variable capturing EPHI status (0=rejected and 1=accepted) and the relevant firm and job characteristics used as proxies for the types of plans offered and the premiums faced by workers. In the MEPS, the available variables are: firm size, industry, union membership, region, whether there was a choice of EPHI plans, full time or part time status, whether the job is temporary, and hourly wages. In the NLSY97, the available variables are: firm size, industry, union membership, region, urban/rural status, full time or part time status, and hourly wages. In MEPS, I run these regressions for all individuals aged 25 to 64 as well as for smaller age groups.

A statistically significant positive (negative) coefficient on the EPHI dummy is interpreted as evidence of *ex ante* adverse (advantageous) selection since it indicates that those

who accept EPHI have worse (better) general health. As will be seen in the results, I find strong evidence of advantageous selection in the 25-40 age group, and no evidence of selection in the 41-64 age group.

In order to explain the results and explore the sources of selection, I gradually add other control variables to the model. If these variables capture advantageous characteristics, the coefficient on the EPHI indicator should increase (become less negative) with their addition. In the MEPS, I add the following available variables in order: job tenure, education, other demographics (sex, marital status, family size, and race), family income, and risk preferences. In the NLSY97, I add the following variables: job tenure, education, other demographics (sex, marital status, children in household, and race), family income, other personal and family background characteristics (i.e., cognition, personality traits, family income during adolescence, parental education and parenting styles), and context specific risk preferences. Online Appendix B provides details on all variables used.

V. Results

V.A. Descriptive Statistics

Table I, panel B, reports the fraction of EPHI eligible employees who decline the offer and remain privately uninsured, by age group, calculated using the MEPS data from 2001 to 2010. This fraction is highest in the 25-30 age group (8.7%) and declines with age to 3.3% in the 51-64 age group. Looking over time, I find that these fractions have increased in all age groups from 2001 to 2010. For example, the fraction declining EPHI and remaining privately uninsured increased from 6.4% in 2001 to 10.3% in 2010 among 25-30 year old individuals. In the NLSY97, the fraction of eligible employees 26-30 year old who decline EPHI and remain privately uninsured is also 10.0% in 2010.

Tables II and III provide summary statistics for selected sub-samples of employees from

the MEPS and the NLSY97, respectively. Comparing those who take up EPHI with those who decline it and remain privately uninsured, I observe that the latter group is slightly younger (MEPS), and contains substantially higher fractions of Hispanic, Black, and single individuals. Very large differences are observed in educational attainment, with the latter group containing much higher fractions of individuals with less than high school and high school completion only. Those who decline EPHI also have much lower personal and family average incomes.

Those who decline EPHI have on average worse general health and worse health behaviors, with the only exception of drinking. However, the average total medical expenditures are higher, approximately double, among those who take up EPHI.

In terms of risk preferences, I observe that those who take up EPHI report being less likely to take risks in general in the MEPS sample. However, in the NLSY97 sample, the relationship varies with the context of the question. The group declining EPHI is on average more willing to take health risks. However, it is less likely to take financial risks. Also, it contains a significantly higher share of individuals in risk Category I (least willing to take risks) based on the hypothetical lifetime income gamble questions, and lower shares in Categories II and III. This contrasts sharply with the finding in Barsky et al. (1997) that among HRS respondents who are in their late working lives, employees who have health insurance have higher shares in Category I (least willing to take risks) and lower shares in Category IV (most willing to take risks) than employees who do not have insurance. While the finding in Barsky et al. (1997) support the theory that more risk averse individuals (based on income gamble questions) are more likely to have health insurance, the results here indicate the opposite is the case among young individuals aged 26-30.

For reference, I also report descriptive statistics on the groups of employees who are not offered EPHI by their own employer and who do not have any private insurance from another source. This group appears on average even more disadvantaged than the group

declining EPHI offers: it contains even higher fractions of low educated individuals, has lower personal and family incomes, and has slightly worse general health and health behaviors (with a few exceptions). Surprisingly, this group is also on average more risk averse based on income gamble questions than those who take up EPHI.

Figure I plots the distributions of health and financial risk preferences and of risk categories based on the lifetime income gamble question.[25] Table IV presents the rank correlation coefficients between the three risk taking variables. The correlation coefficient between the lifetime income gamble categories and the health risk preferences is very low (0.156), and the correlations between the income gamble categories and financial risk preferences and between financial and health risk preferences are positive and moderate.

V.B. Evidence of Selection in EPHI and Sources of Selection, MEPS

I estimate OLS models of general health on EPHI status and additional control variables. Year dummies are included in each specification. For the purpose of this estimation, I exclude all observations with missing hourly wages or where the hourly wage is lower than half of the minimum wage in the corresponding year. Table V reports the coefficients on the EPHI indicator variable corresponding to each specification.

Column 4 in Table V presents the results from the model that includes all the available relevant firm and job characteristics that proxy for the types of insurance plans offered and the premiums faced by workers. We observe that in the 25-30 and 31-40 age groups, these coefficients are negative and statistically significant at the 1% confidence level. Those who

[25]It is evident from these figures that a large fraction of respondents give focal responses at 0, 5, and 10. If individuals do not correctly report their risk taking preferences, the results will underestimate the extent to which risk preferences contribute to selection. To address these concerns, I conduct two types of sensitivity experiments using the NLSY97 data. First, I group responses into three categories (low risk (0), medium risk (1-5), and high risk (6-10)). This strategy would address the issue with focal answers if these conveyed ordinal rather than cardinal information (Finkelstein and McGarry (2006)). Second, I exclude individuals who give focal answers. The results are reported in Online Appendix A. None of the conclusions presented in the paper change.

decline EPHI have 0.20 (0.15) of a standard deviation point worse health than those who take up EPHI in the 25-30 (31-40) age group. However, in the age groups older than 40, there is no significant correlation between health and EPHI status.

I include hourly wages because 13% of covered workers are in firms that vary worker premium contributions by wage level (The Kaiser Family Foundation and the Health Research and Educational Trust (2010)). However, hourly wages capture much more information than this possible variation in premiums. They are highly correlated with ability, education, and family income, which are personal characteristics that have been shown to be advantageous characteristics in other markets (Fang et al. (2008) and Buchmueller et al. (2013)). In a specification that excludes hourly wages (Column 3), I find a much stronger relationship between EPHI take up and good health. The specification that includes wages in Column 4 might be underestimating the degree of advantageous selection in the EPHI market.

In Column 5, I add years of job tenure to the model. As highlighted in Fang and Gavazza (2011), longer job tenures are associated with stronger incentives to invest in health for both employers and employees. Workers with long tenures might be more likely to take up EPHI while at the same time being healthier, partly as a result of having the insurance (Aizawa and Fang (2015)). I find that controlling for years of job tenure has little effect on the results.[26] However, note that the effects of job tenure may not be evident at young ages because when young, those with shorter job tenures have on average more years of education due to a later entry into the labor force.[27] In section V.H.3 I explore in more

[26] In sensitivity analysis presented in Online Appendix B, I conduct the same analysis including only workers with job tenures shorter than 3 years, and with workers with tenures greater or equal to 3 years. I obtain the same qualitative results.

[27] If we control for education in addition to firm and job characteristics, then the addition of job tenure to the model lowers the EPHI coefficient in absolute value. Longer job tenures are associated with better health status and with higher probabilities of taking up EPHI in the 31-40 age group, when these controls are included.

detail the relationship between EPHI take up and subsequent job changes.

I find that educational attainment is positively correlated with EPHI take up and with good health and is a significant source of advantageous selection in young age groups. In Column 6, I include education to the model and find that the EPHI coefficients decrease significantly in absolute value. In Column 7, I also control for other demographics (i.e., sex, race, family size, and marital status). While the coefficients decline slightly further in absolute value, they remain statistically significant among those aged 25-40.

As noted earlier, health plans offered and premiums do not depend on personal (non-job related) characteristics, but they likely depend on the average characteristics of all employees within the firm. However, personal characteristics such as job tenure, education, sex, and race may be linked to firm wide characteristics such as average turnover, level of productivity, education, and sex and race composition of all employees, especially in small firms. Therefore, these individual level characteristics could be systematically related to differences in premiums that arise from these firm level characteristics. However, the EPHI coefficients remain negative and statistically significant when controlling for these, strengthening the evidence for *ex ante* advantageous selection in the 25-40 age groups. I also conduct the analysis separately for employees in small and large firms, and find that the results do not differ systematically across these sub-samples (see Online Appendix B).

Next, I control for family income deciles (Column 8). In the 31-40 age group, the negative EPHI coefficient remains significant only at the 10% confidence level. Notably, the EPHI coefficient in the 41-50 age group becomes positive and statistically significant, indicating a positive relationship between EPHI take up and health risk at these ages.

Two previous papers, Blumberg and Nichols (2001) and Bernard and Selden (2006) document that workers who decline EPHI are more likely to be in poor health, but are *less* likely to have high cost medical conditions. These findings are based on averages, not controlling for any characteristics and not separated by age groups. My constructed

general health measure incorporates information on self-reported health as well as number of chronic conditions. In Online Appendix B, I study EPHI selection based on these two separate measures of health. I find that the results based on self-reported health are very similar to the results based on the constructed health measure. In addition, using the self-reported health, I also find evidence of *ex ante* advantageous selection in the 51-64 age group. However, I find no significant relationship between the number of chronic conditions and EPHI take up among employees 25-40 year old, but I do find that among those 41-64 year old, those who take up EPHI have *more* chronic conditions, consistent with adverse selection.

Finally, I add risk attitudes to the model (Column 9). The effects on the EPHI coefficients are small and differ in direction across age group, indicating that these self-reported general risk preferences are not very important in explaining EPHI selection.

As mentioned in the discussion related to job tenure, health insurance could have a causal effect on health. Those who for any reason decided to take up EPHI could have better health as a result of better access to medical care caused by insurance. However, note that health is measured in approximately the same time period as that in which EPHI availability and take up are measured. Insurance contracts typically have a duration of only one year, so if adverse selection were present, we should observe constant adjustments over time, with those in good health dropping insurance after some time and those in bad health taking up insurance. Moreover, evidence of advantageous selection is found even in the sub-sample of workers with job tenures shorter than 3 years where any causal effects of insurance on health are less likely.

I also explore an alternative specification, estimating probit models of EPHI take up on general health, adding the same set of controls as described above. Online Appendix B presents the results. The results are consistent across these different specifications.

V.C. Evidence of Selection in EPHI and Sources of Selection, NLSY97

Table VI reports the results from similar regression models using the NLSY97. As in the MEPS, I exclude all observations where hourly wages are missing or are lower than half of the minimum wage in 2010. I also exclude those with job tenures shorter than 13 weeks and those with employment shorter than 10 weeks in 2010. Due to the smaller sample size in the NLSY97, I do not exclude the observations with missing values for other variables. Instead, I construct separate categories indicating when a response is missing or invalid for each of the remaining variables. In sensitivity analysis, I also exclude the respondents with missing observations, and find that this does not change any of the conclusions presented here.

The results in Table VI are very similar to those found using the MEPS data in the 25-30 age group.[28] The EPHI coefficient is negative and statistically significant when controlling for the relevant firm and job characteristics, and also when adding job tenure (in weeks) and education. However, it is no longer statistically different from zero when also controlling for other demographics (i.e., gender, marital status, children, ethnicity) or family income deciles (Column 7).[29]

Since the NLSY97 contains a rich set of variables from the respondents' adolescence, I investigate whether other personal and family background characteristics are sources of selection. I find that the following characteristics are advantageous: cognitive ability in 1999 (i.e., the ASVAB math/verbal score in the NLS which is similar to the AFQT score), personality traits reported in 2002 (i.e., organized, thorough and conscientious traits),

[28]Note that the coefficients on the EPHI indicator are not directly comparable across the two tables because the health variable in MEPS was constructed to have a mean of 0 and standard deviation of 1 in the sample of individuals aged 25 to 65, while the health variable in the NLSY97 has a mean of 0 and s.d. of 1 in the sample of 26-30 year old individuals. The standard deviation of the health variable is smaller in the MEPS sample in the 25-30 age group compared to the NLSY97, explaining why the estimated coefficients are smaller (in absolute value) in the MEPS.

[29]I do not report the separate specifications in the table to save space, however, the coefficient loses its statistical significance when either demographics or family income is added.

mother's and father's education, family income decile in 1997, the father's parenting style reported in 1997, and views towards discipline reported in 1997.[30] The inclusion of each one of these variables to the model lowers the EPHI coefficient in absolute value by a small amount.[31] Column 8 reports the EPHI coefficient when controlling for all these characteristics together, in addition to firm and job characteristics, job tenure and education. The coefficient is no longer statistically significant.

V.D. Risk Preferences and Selection in Health Insurance

In this section, I discuss the importance of considering context specific risk preferences when studying selection in health insurance markets. The existing literature assumes the presence of a single risk taking trait that influences both health behavior and insurance decisions. However, health behavior might be determined mainly by preferences for health risk, while insurance decisions (in most markets) might be determined mainly by preferences for financial risk. In order to better understand how risk preferences contribute to selection, it is helpful to study how these context specific risk preferences relate to health behavior and to insurance demand.

A priori, it is not clear whether or how these preferences independently contribute to selection in health insurance. A lower willingness to take health risk (WHR) should lead to better health behaviors and better health.[32] However, the relationship between the WHR and demand for insurance is difficult to predict as it likely depends on the role of health insurance and the institutional environment.

Let us first consider the case where health insurance provides insurance mainly against

[30] Respondents were between 13 and 17 years of age in 1997.

[31] Other characteristics were found to have no effect on the EPHI coefficient. These include the mother's parenting style, longevity expectations reported in 2002, whether the respondent was covered by private health insurance in 1997, and the mother's and father's employment status during childhood.

[32] Health status might in turn affect health risk attitudes in either direction, but this effect is likely of second order importance.

the financial risk associated with bad health. This would be the case if individuals could access the same medical services when paying out of pocket as when having insurance and there existed a social safety net providing the required medical treatment in case of illness when personal financial resources run out. Then, conditional on financial risk attitudes, a lower WHR would be associated with lower insurance demand because people who take health precautions have better health and are less likely to need medical care. In this case, the WHR would contribute to adverse selection.

On the other hand, if health insurance provided access to medical services that could not be purchased by paying out of pocket, or if a well functioning social safety net did not exist, then health insurance would be valued for its role in keeping and restoring good health (i.e., as an input into one's health production function). In this case, buying health insurance is an investment in health. This description likely applies in the case of EPHI in the pre-ACA environment as uninsured individuals risked being refused costly treatments in hospitals, and the Medicaid system was unlikely to cover certain groups such as single men (The Kaiser Family Foundation (2015)). It is therefore possible that individuals with a lower WHR demand **more** insurance despite having lower expected medical needs. The overall effect is uncertain since it depends on the relative strengths of these forces.

The selection effect is also unclear in regards to the willingness to take financial risk (WFR). All else equal, a lower WFR should be associated with a higher demand for insurance. However, a lower WFR could be associated with better or worse health. On the one hand, becoming ill has serious financial consequences (even when insured) through lower productivity and possible job loss, so a lower WFR should be associated with taking more health precautions and better health. On the other hand, good health could lead to higher WFR since financial losses are more easily recovered when healthy and productive

and since medical expenditure risk is smaller.[33] Overall, the relationship could go either way. Using German data, Dohmen et al. (2011) find no statistically significant relationship between the WFR and subjective health status, indicating we should not expect financial risk preferences to independently contribute to advantageous selection in health insurance.

The correlation between the WHR and the WFR is positive and moderate. These preferences could in theory act together to contribute to advantageous selection, however, this is uncertain given the ambiguity in their individual effects.

V.E. Evidence: Risk Preferences and Selection in EPHI

The last three columns in Table VI present the coefficients on the EPHI indicator from regressions of general health that control for firm and job characteristics plus each of the following risk taking variables separately: the WHR, the WFR, and risk categories derived from the standard hypothetical income gambles. The EPHI coefficient decreases in absolute value relative to Column 5 only when the WHR is added, and only by a small amount. On the other hand, the inclusion of the WFR and the lifetime income gamble risk preferences lead to slightly lower (more negative) coefficients, although the differences are not statistically significant.[34]

Online Appendix A presents a detailed analysis of how each risk preference measure is related to health status, health behaviors, health transitions, and EPHI take up, conditional on an extensive list of controls. As expected, a higher WHR is associated with worse health, worse behaviors, and worse health transitions. It is also associated with a lower probability of taking up EPHI. Therefore, the WHR is an advantageous characteristic.

[33] Rosen and Wu (2004) find that HRS respondents in good health are more likely to hold risky financial assets and have larger shares of financial wealth in risky assets. However, they do not find that health is related to risk attitudes as measured by responses to the lifetime income gamble questions.

[34] Qualitatively, the results are the same when the regressions also include the full set of controls, i.e., job tenure, education, demographics, income and additional personal and family characteristics. However the EPHI coefficients are not statistically significant in any regressions that include all these variables.

On the other hand, a higher WFR is associated with **better** health, better diet and more exercise, and better health transitions. No statistically significant relationship exists between the WFR and EPHI take up, so the WFR does not contribute to selection in EPHI. Risk preferences derived from income gamble questions also play no role in explaining the observed selection as they have no significant relationships with health nor EPHI take up when including a full set of controls. These results suggest that EPHI is valued as a health investment rather than as insurance against the financial risks of bad health. In older populations, Barsky et al. (1997) and Fang et al. (2008) find that individuals who are less likely to take risks in hypothetical lifetime income gambles are more likely to have insurance. Perhaps this is not observed at younger ages because the financial risk associated with health shocks is much smaller when young.

V.F. Risky Health Behaviors

In this section, I examine differences in risky behaviors between those who take up EPHI and those who decline it and remain privately uninsured. I study the following health related behaviors: smoking, drinking, poor diet, lack of exercise, lack of sleep, not wearing a seat belt, and lack of basic preventive care (measured by check-ups and flu shot).[35]

Ex ante moral hazard predicts that workers who enroll in EPHI take fewer health precautions. As a result, the overall risk level of the insured may increase relative to those who decline EPHI. On the other hand, *ex post* moral hazard acts to increase medical care utilization of the insured since prices are lower, predicting a positive association between EPHI take up and preventive care.

[35] In Online Appendix B, I provide evidence that smoking, poor diet, lack of exercise and lack of sleep each significantly lowers the probability of staying in good health 3 years later. However, drinking and lack of preventive care are not significantly associated with health transitions.

Using the same sub-samples of EPHI eligible workers, I estimate OLS or probit models of these behaviors on an EPHI indicator variable, gradually adding the same control variables to the model as in Section V.[36] All behavior variables are constructed such that higher values indicate more risky behaviors. In the MEPS, I restrict the analysis to those in the 25-40 age group.[37] Tables VII and VIII present the results from the MEPS and the NLSY97 sub-samples, respectively.

Conditioning on firm and job characteristics that proxy for EPHI plans and premiums, I find that those who take up EPHI have significantly less risky behaviors in terms of smoking, diet, sleep and preventive care compared to those who decline EPHI and remain privately uninsured. The inclusion of additional controls (job tenure, education, demographics and family income) in general weakens these associations, although the EPHI coefficients remain negative and highly statistically significant in the smoking and preventive care regressions in the MEPS, and in the preventive care regression in the NLSY97. No statistically significant associations are found for exercise, seat belt use, or drinking.

The results obtained on smoking, diet and sleep indicate that those who enroll in EPHI are expected to remain lower risk. Overall, the results are consistent with previous literature that finds that *ex ante* moral hazard in the health insurance context is not very important (e.g., Newhouse and Group (1993) and Courbage and De Coulon (2004)). The results on preventive care are more difficult to interpret since they could be driven by several forces, discussed further in the next section.

[36] In the MEPS, smoking and lack of exercise are binary variables, so I estimate probit models in their case. All other behavior variables have been standardized and are treated as continuous in OLS models.

[37] In Online Appendix B, I show that the same results are obtained in the 41-64 age group using the MEPS.

V.G. Total Medical Expenditures

In this section, I study the relationship between EPHI take up and the *ex post* realization of loss, that is total medical expenditures. In the MEPS, medical expenditures are reported at the annual level, and I use those reported in the first year of interview which includes Round 1 when insurance status is determined. Using the MEPS sub-sample of EPHI eligible individuals, I estimate an OLS model of total annual medical expenditures on the EPHI indicator (constructed for Round 1), adding the same set of control variables as in previous analysis. Controlling for firm and job characteristics, I find that those who enroll in EPHI have substantially higher total medical expenditures in the age groups older than 30 than those who decline EPHI and remain privately uninsured (Table IX, Column 2). Expenditures are $974 higher in the 31-40 age group, despite the fact that those who take up EPHI are healthier and have less risky behaviors. As expected, when I condition on health status, the relative expenditures of those who take up EPHI increase (to $1208) in the 31-40 age group (Column 3). Differences in medical expenditures remain statistically significant when I control for job tenure, demographics, family income and risk preferences, although the size of the coefficient declines. Columns 4 and 5 present the results from these specifications with and without conditioning on health status.

There are several forces that could affect the correlation between EPHI and medical expenditures in different direction. *Ex ante* advantageous selection in EPHI among young age groups predicts that those who take up EPHI should have lower medical expenditures since they are healthier. The results on risky health behaviors (smoking, diet, and sleep) reinforce this prediction. However, *ex post* moral hazard predicts the opposite relationship as those who take up EPHI face lower prices and demand more care. There could also be selection on moral hazard, meaning that individuals whose health care utilization increases more sharply in response to insurance coverage are more likely to take up the insurance

offer (Einav et al. (2013)).[38]

Yet another possible mechanism is that some workers, such as those who value health more, are more likely to take up EPHI and also have a higher demand for preventive care given everything else equal. At young ages, preventive care accounts for a large share of medical expenditures. This would predict a positive association between EPHI take up and expenditures. Fang and Gavazza (2011) and Ozkan (2014) are two examples of dynamic models where individuals who value health more have higher medical expenditures when young due to higher demand of preventive care.[39][40] In the next section, I discuss this possibility in more detail.

V.H. Explaining the Results

This section explores various mechanisms that could lead to the observed results. First, I discuss possible reasons why education and family income are important determinants of *ex ante* advantageous selection in EPHI at young ages. Then, I show that other important explanations are Medicaid crowding out EPHI for low SES individuals and short expected job tenures leading to under-investment in health.

V.H.1. Value of Life and Health, Knowledge, and Family Background

Better educated and higher income individuals have a higher present discounted value of future lifetime utility. Since these groups value the future more, they could invest more in health in order to protect it. Good health is important in maintaining their ability to work, thus enabling them to earn the returns to their human capital investments, and also

[38] Differences in medical expenditures could also arise due to differential access to care or types of treatments received. Exploring these is beyond the scope of this paper.

[39] Fang and Gavazza (2011) focus on differences in returns to health investment created by labor market turnover and Ozkan (2014) focus on differences in returns to health investment for different income groups.

[40] Viewed in this way, medical expenditures are a form of health investment rather than a realization of loss.

increases their longevity (e.g., Murphy and Topel (2006); Hall and Jones (2007); Ozkan (2014)). Other explanations for why more educated individuals invest more in health are that they have more knowledge and cognitive ability, better family background, and better social networks (Cutler and Lleras-Muney (2010)).[41]

These theories are consistent with the finding that education and family income contribute to advantageous selection in EPHI among young employees. Better educated and higher income individuals have better health behaviors, including higher use of preventive care, better health, and are more likely to take up EPHI, likely for its value as a health investment.

V.H.2. Medicaid Crowd out

Medicaid has been shown to crowd out private insurance, especially among women (Cutler and Gruber (1996)). I explore the possibility that selection in EPHI is related to Medicaid crowding out private insurance. Those who qualify for Medicaid have little incentives to take up EPHI, while at the same time being higher risk due to low SES status. In the MEPS, 24.6% of women and 5.9% of men aged 25-40 who decline EPHI and remain privately uninsured have Medicaid in Round 1, while in the NLSY97, 26.9% of women and 9.1% of these have Medicaid, respectively.

I re-do the entire analysis excluding all those who have Medicaid in the time period when they declined the available EPHI. The results from both the MEPS and the NLSY97 are reported in Online Appendix B. Using both data sets, I still find evidence of advanta-

[41] Interestingly, Cutler and Lleras-Muney (2010) find that the value of the future does not account for the education gradient in health behaviors. They also find that risk preferences do not account for it. Using HRS data, they find that education is not monotonically related to risk preferences based on hypothetical income gambles. I also find that the WHR (the only risk preference that consistently predicts behaviors in the young NLSY97 sample) is not monotonically related to education or family income (see Online Appendix A). Therefore, these preferences do not explain differences in health behaviors across education or income groups.

geous selection among employees 25-40 year old. Workers who take up EPHI are in better health than those who decline EPHI and remain completely uninsured, conditioning on firm and job characteristics as well as job tenure. However, the size of the coefficients on the EPHI indicator is approximately 23% smaller in absolute value, and the statistical significance disappears when education is added, indicating that indeed, Medicaid contributes to explaining the observed selection.

It is also possible that some employees decline EPHI not only because they have Medicaid at the time the decision is made, but because they anticipate qualifying for it in the future. For example, it might be optimal to decline EPHI, consume a little more today by not paying the premium, delay medical treatment, and leave employment in the future and qualify for Medicaid when health problems become more serious. Using the MEPS, I study whether individuals between 25 and 40 years of age who declined EPHI and remained both privately and publicly uninsured in Round 1 are more likely to have Medicaid insurance in Round 5 than those who took up EPHI. Excluding all those with public insurance in Round 1, I estimate a logit model of an indicator equal to one if the individual has Medicaid insurance in Round 5 on the EPHI indicator (from Round 1) and various controls (Table X).

Clearly, since those who decline EPHI are less healthy in Round 1, and since a lack of insurance can further deteriorate their health by Round 5, they are more likely to qualify for Medicaid in Round 5. To account for this, I control for health in both Rounds 1 and 5, and for the exact age, in addition to firm and job characteristics. I find that conditional on these, those who declined EPHI in Round 1 are significantly more likely to become Medicaid recipients in Round 5 (Column 3).[42] The relationship becomes weaker but remains

[42]In this restricted sub-sample, 26% of those who had Medicaid in Round 5 were not employed in this round. This is consistent with Pashchenko and Porapakkarm (2016) who find that 23% of Medicaid recipients did not work in order to be eligible. Since the Medicaid criteria was stringent before the ACA, it was easier to qualify for it when not employed, so Medicaid discouraged labor supply.

statistically significant when I also control for job tenure, education, demographics, family income, and risk preferences. It is likely that those who decline EPHI in anticipation of receiving Medicaid in the future have worse health since they belong to lower SES groups, thus contributing to advantageous selection in EPHI.

In Online Appendix B, I also re-do the analysis on selection in EPHI using only those with family incomes under $30,000, since these individuals are most likely to qualify for Medicaid.[43] I find that advantageous selection is much stronger in this low income sub-sample. However, I still find evidence of *ex ante* advantageous selection among young employees with family incomes higher than $30,000, although this is weaker.

In terms of differences in risky health behaviors, I find that both those who decline EPHI but have Medicaid and those who remain completely uninsured have more risky health behaviors than those who take up EPHI. The only exception is preventive care where I find no significant differences between those who decline EPHI and have Medicaid and those who take up EPHI (Online Appendix B).

For medical expenditures, I find that those who take up EPHI have much larger expenditures than those who decline EPHI and remain completely uninsured. These differences are larger than those estimated in Section V.G. The uninsured decliners could be spending less on medical care because they delay treatment until a later time when they anticipate qualifying for Medicaid. No statistically significant differences in expenditures exist between those who take up EPHI and those who decline it and are covered by Medicaid (Online Appendix B).

[43] In the MEPS sub-sample, the average annual family income of individuals who decline EPHI and have Medicaid in Round 1 is $26,403 for men and $24,392 for women.

V.H.3. Job Tenure

Here I explore in more detail the link between EPHI take up and job tenure. Fang and Gavazza (2011) argue that employee turnover acts to lower the employer-employee pair's incentives to invest in the employee's health, and find that workers with shorter job tenures invest less in health.

Simply conditioning on job tenure in the analysis so far had little effect on the results. However, it is possible that among those with similar job tenures, those who anticipate job changes or non-employment spells in the future invest less in their health, being less likely to take up EPHI.

Using the MEPS sub-sample of 25-40 year old individuals, I find that those who decline EPHI in Round 1 and remain privately uninsured are more likely to be non-employed in Round 5, controlling for job and firm characteristics in Round 1, job tenure, education, demographics, family income in the first year, and health status in both rounds (Table XI). Job lock cannot explain this relationship since all individuals in the sub-sample had EPHI available to them. These results are consistent with the arguments in the previous section since many individuals likely leave employment in order to qualify for Medicaid.

However, I also find that keeping only individuals who were employed in both Rounds 1 and 5, those who declined EPHI and remained privately uninsured in Round 1 were more likely to have changed jobs a year later (Table XII). This supports the theory presented in Fang and Gavazza (2011).

V.H.4. Discussion of differences across age groups

Selection in EPHI varies significantly with age. There are higher fractions of young employees declining EPHI compared to older groups, and *ex ante* advantageous selection is observed only among those aged 25-40. Several factors could explain these patterns. First, young unhealthy workers might find it easier to ignore medical problems and delay

treatment relative to older workers. Health problems are likely much more severe when older, thus the value of EPHI increases with age. Second, the group of individuals offered EPHI when young is very different from the group offered EPHI later in life. Young employees who decline EPHI and remain privately uninsured are more likely to become non-employed a year later and are more likely to change jobs. As they get older, these individuals likely lose employment at jobs that offer EPHI.

VI. Conclusion

In this paper, I show that among eligible employees 25-40 years old, those who enroll in EPHI are in significantly better health than those who decline the insurance offer and remain privately uninsured, conditional on firm and job characteristics that proxy for the types of health plans offered and premiums. No differences in health exist in age groups older than 40. Those who enroll in EPHI are also less likely to engage in risky health behaviors, use more preventive care, and have higher total medical expenditures.

The group of uninsured young individuals is of particular interest in the debate surrounding the ACA. Also, the health insurance decisions of the young are important because in the advent of a serious health shock, a lack of health insurance can lead to a lack of necessary care, deteriorating health, inability to work, and reliance on public programs. Taking up available health insurance represents an important health investment. Indeed, I find that education is a significant source of advantageous selection, possibly because higher SES is associated with a higher value of health, leading to higher health investments. Interestingly, I find that risk taking preferences *per se* do not play a significant role in explaining selection in EPHI.

Medicaid crowd out of EPHI also contributes to advantageous selection. Those qualifying for Medicaid have little incentive to take up EPHI while also being higher risk

due to low SES. While the main results hold even when Medicaid recipients are excluded from the analysis, the degree of *ex ante* advantageous selection among young employees is diminished. In addition, I find that those who reject EPHI are more likely to become non-employed and to become eligible for Medicaid a year later. This indicates that they may be delaying medical care and rejecting EPHI in anticipation of Medicaid coverage in the future. Finally, I also find that they are more likely to change jobs a year later, thus supporting the hypothesis that short job tenure is associated with lower incentives to invest in health (Fang and Gavazza (2011)). In future research, it would be interesting to study how the different components of the ACA are impacting the insurance choices of individuals who were previously declining EPHI offers, remaining privately uninsured. It would also be interesting to evaluate the ACA using structural models that capture the characteristics and incentives of this uninsured group.

Tables

Table I: Health Insurance Status, by Age Group, MEPS

A. Private Health Insurance (PHI) Status, % of total				
Age Group	**25-30**	**31-40**	**41-50**	**51-64**
No PHI, no EPHI offer	23.3	18.7	15.8	13.0
No PHI, had EPHI offer	5.9	4.1	3.2	2.2
Insured, own EPHI	56.0	56.8	58.2	58.5
Insured, other source	14.9	20.4	22.8	26.4
Total	100.0	100.0	100.0	100.0
B. EPHI Status, % of those offered EPHI				
Rejected, has no PHI	8.7	6.1	4.6	3.3
Accepted	83.5	82.3	83.5	85.2
Rejected, has other PHI	7.8	11.6	11.9	11.6
Total	100.0	100.0	100.0	100.0

Notes: The statistics are calculated using MEPS data from 2001-2010, using Round 1 interview information, and using sampling weights. Statistics in Panel A are calculated using all respondents and statistics in Panel B are calculated keeping only workers, not self-employed, not in the military, with a valid industry. Of those who rejected EPHI and have other PHI, only 2.4% have non-group insurance.

Table II: Descriptive Statistics, Selected Groups of Workers, MEPS

EPHI Offered	Yes	Yes	No
EPHI Take-up	Yes	No	-
Other Private Insurance	-	No	No
Observations	30,678	2,710	10,149
Male	0.549	0.532	0.554
Age	42.535	38.929	39.209
Hispanic	0.099	0.234	0.319
Black	0.117	0.190	0.146
Asian	0.141	0.083	0.098
White and Other	0.643	0.493	0.437
Married	0.604	0.461	0.437
Less than High School	0.071	0.231	0.308
High School	0.283	0.372	0.355
Some College	0.248	0.244	0.204
College	0.398	0.153	0.133
Gross Personal Income (Annual)	54,994	32,143	25,046
Gross Family Income (Annual)	76,187	42,071	32,056
Total Medical Expenditures (Annual)	3,623	1,851	1,725
General Health	-0.165	-0.007	0.022
Behavior: Smoking	0.196	0.316	0.336
Behavior: Exercise	0.396	0.417	0.440
Behavior: Seat Belt	-0.025	0.081	0.065
Behavior: Preventive Care	-0.091	0.376	0.527
Risk Taking			
Group 1 (Least Risk Taking)	0.392	0.314	0.315
Group 2	0.260	0.234	0.218
Group 3	0.134	0.171	0.183
Group 4	0.172	0.223	0.210
Group 5 (Most Risk Taking)	0.041	0.058	0.073

Notes: For general health and the four health behaviors, higher numbers indicate worse health and more detrimental behaviors. The statistics are calculated using only employees between 25 and 64, with a valid industry, not in the armed forces, and not self-employed, using MEPS data from 2001-2010. Sampling weights are used. Some variables have slightly lower observations due to missing values.

Table III: Descriptive Statistics, Selected Groups of Workers, NLSY97

EPHI Offered	Yes	Yes	No
EPHI Take-up	Yes	No	-
Other Private Insurance	-	No	No
Observations	2,652	425	1,512
Male	0.539	0.490	0.540
Age	28.070	27.902	27.820
Hispanic	0.117	0.158	0.165
Black	0.114	0.196	0.202
Married	0.399	0.247	0.205
Has Children in HH	0.353	0.463	0.417
Less than High School	0.063	0.290	0.271
High School	0.183	0.239	0.274
Some College	0.233	0.277	0.270
College	0.521	0.195	0.186
Earnings Income	46,324	23,451	21,684
Gross Family Income	86,073	50,449	49,682
General Health	-0.166	0.163	0.190
Behavior: Smoking	-0.192	0.211	0.286
Behavior: Drinking	0.071	0.059	0.068
Behavior: Diet	-0.099	0.226	0.220
Behavior: Exercise	-0.087	0.056	0.084
Behavior: Sleep	-0.120	0.072	0.086
Behavior: Preventive Care	-0.121	0.444	0.309
Risk Taking			
Health Risk Taking	3.019	3.273	3.150
Financial Risk Taking	3.990	3.836	3.875
Gamble Category I (Least Risk Taking)	0.479	0.572	0.534
Gamble Category II	0.236	0.185	0.219
Gamble Category III	0.137	0.090	0.088
Gamble Category IV (Most Risk Taking)	0.148	0.154	0.158

Notes: For general health and the six health behaviors, higher numbers indicate worse health and more detrimental behaviors. Health and financial risk taking variables range from 0 to 10, where higher numbers indicate more willingness to take risks. Some variables have slightly lower observations due to missing values. All statistics are calculated using 2010 sampling weights.

Table IV: Correlations Between Risk Preferences in Different Contexts, NLSY97

Spearman's Rank Correlation Coefficients			
	Health	Financial	Income Gamble Categories
Health	1.000		
Financial	0.371	1.000	
Income Gamble Categories	0.156	0.322	1.000

Notes: Correlations are obtained using the sample of all individuals for whom risk preference variables are available in 2010, excluding those with 0 sample weights. All correlations are statistically significant at the 5% level.

Table V: OLS Regression Results of General Health on EPHI Status and Other Controls, MEPS

Age Group	1	2	3	4	5	6	7	8	9
25-30	-0.287***	-0.259***	-0.247***	-0.197***	-0.200***	-0.127***	-0.118***	-0.103**	-0.089**
	(0.040)	(0.043)	(0.043)	(0.043)	(0.044)	(0.044)	(0.044)	(0.044)	(0.046)
31-40	-0.257***	-0.265***	-0.260***	-0.152***	-0.144***	-0.093**	-0.086**	-0.071*	-0.085*
	(0.037)	(0.041)	(0.041)	(0.041)	(0.042)	(0.042)	(0.042)	(0.043)	(0.044)
41-50	-0.095**	-0.074*	-0.062	0.012	0.023	0.056	0.069	0.097**	0.093**
	(0.041)	(0.045)	(0.045)	(0.046)	(0.046)	(0.045)	(0.045)	(0.045)	(0.046)
51-64	-0.164***	-0.165**	-0.156**	-0.069	-0.071	-0.045	-0.023	-0.018	-0.009
	(0.057)	(0.064)	(0.065)	(0.064)	(0.064)	(0.064)	(0.063)	(0.064)	(0.067)
25-64	-0.150***	-0.153***	-0.144***	-0.073***	-0.103***	-0.047**	-0.046*	-0.027	-0.032
	(0.021)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.025)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Characteristics	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FT or PT, Temporary	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hourly Wages	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Job Tenure	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Education	No	No	No	No	No	Yes	Yes	Yes	Yes
Demographics	No	No	No	No	No	No	Yes	Yes	Yes
Family Income	No	No	No	No	No	No	No	Yes	Yes
Risk Attitudes	No	No	No	No	No	No	No	No	Yes

Standard errors in parentheses

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

Notes: The dependent variable in each regression is general health, where higher values of this variable indicate worse health. The regressions are run separately by the age groups indicated on the left hand side. The reported coefficients are those on the EPHI variable (equal to 1 for those who have EPHI from their employer and 0 for those who declined EPHI and remained privately uninsured) from different specifications with different controls as listed at the bottom of the table. Details on the control variables included are provided in Online Appendix B.

Table VI: OLS Regression Results of General Health on EPHI Status and Other Controls, NLSY97

	1	2	3	4	5	6	7	8	9	10	11
EPHI Indicator	-0.321***	-0.316***	-0.291***	-0.203***	-0.212***	-0.136**	-0.108	-0.094	-0.202***	-0.217***	-0.236***
	(0.062)	(0.063)	(0.066)	(0.068)	(0.069)	(0.068)	(0.070)	(0.067)	(0.069)	(0.069)	(0.071)
Firm Characteristics	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Job Characteristics	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hourly Wages	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Job Tenure	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education	No	No	No	No	No	Yes	Yes	Yes	No	No	No
Demog and Fam Inc	No	No	No	No	No	No	Yes	No	No	No	No
Additional Controls	No	No	No	No	No	No	No	Yes	No	No	No
Health Risk Taking	No	No	No	No	No	No	No	No	Yes	No	No
Financial Risk Taking	No	No	No	No	No	No	No	No	No	Yes	No
Income Gambles	No	No	No	No	No	No	No	No	No	No	Yes
Observations	2703	2703	2703	2703	2703	2703	2703	2703	2695	2697	2636

Standard errors in parentheses

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

Notes: The dependent variable in each regression is general health, where higher values of this variable indicate worse health. The reported coefficients are those on the EPHI indicator from different specifications with different controls as listed at the bottom of the table. Details on the control variables included are provided in Online Appendix B.

Table VII: Relationship Between Health Behaviors and EPHI Take Up, 25-40 Age Group, MEPS

Behavior	1	2	3	4	5	6	7	8
Smoking	-0.706***	-0.604***	-0.628***	-0.399***	-0.386***	-0.192**	-0.305***	-0.293***
	(0.077)	(0.085)	(0.086)	(0.087)	(0.088)	(0.089)	(0.093)	(0.094)
Exercise	-0.198***	-0.120	-0.127*	-0.078	-0.093	-0.028	-0.014	-0.035
	(0.068)	(0.074)	(0.075)	(0.076)	(0.077)	(0.078)	(0.080)	(0.083)
Seat Belt Use	-0.120***	-0.0762*	-0.0825**	-0.0267	-0.0310	0.0103	-0.0216	-0.0236
	(0.0418)	(0.0396)	(0.0403)	(0.0411)	(0.0412)	(0.0413)	(0.0418)	(0.0434)
Preventive Care	-0.434***	-0.317***	-0.318***	-0.288***	-0.285***	-0.246***	-0.237***	-0.236***
	(0.0327)	(0.0352)	(0.0354)	(0.0358)	(0.0360)	(0.0366)	(0.0365)	(0.0373)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Characteristics	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FT or PT, Temporary	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Hourly Wages	No	No	No	Yes	Yes	Yes	Yes	Yes
Job Tenure	No	No	No	No	Yes	Yes	Yes	Yes
Education	No	No	No	No	No	Yes	Yes	Yes
Demog. + Fam. Income	No	No	No	No	No	No	Yes	Yes
Risk Attitudes	No	No	No	No	No	No	No	Yes

Standard errors in parentheses

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

Notes: The dependent variables are the health behaviors listed on the left hand side, where higher values indicate more detrimental health behaviors. For smoking and exercise, I estimate logit models of these behaviors on an EPHI indicator and additional controls. For seat belt and preventive care, I estimate OLS models. The reported coefficients are those on the EPHI indicator from different specifications with different controls as listed at the bottom of the table.

Table VIII: Relationship Between Health Behaviors and EPHI Take Up, NLSY97

	1	2	3	4	5	6	7	8	9	10
Smoking	-0.402***	-0.331***	-0.269***	-0.255***	-0.092	-0.124*	-0.124*	-0.116	-0.128*	-0.106
	(0.067)	(0.070)	(0.071)	(0.071)	(0.074)	(0.074)	(0.073)	(0.073)	(0.073)	(0.075)
Drinking	0.009	0.037	0.017	0.023	-0.015	-0.066	-0.069	-0.055	-0.065	-0.051
	(0.066)	(0.071)	(0.072)	(0.073)	(0.073)	(0.071)	(0.071)	(0.071)	(0.072)	(0.073)
Poor Diet	-0.331***	-0.335***	-0.273***	-0.291***	-0.153**	-0.115*	-0.112*	-0.105	-0.111*	-0.118*
	(0.058)	(0.064)	(0.066)	(0.066)	(0.064)	(0.066)	(0.066)	(0.066)	(0.066)	(0.066)
Exercise	-0.144**	-0.099	-0.076	-0.096	-0.032	-0.002	-0.002	0.005	0.001	-0.007
	(0.064)	(0.069)	(0.070)	(0.070)	(0.071)	(0.072)	(0.072)	(0.072)	(0.072)	(0.073)
Sleep	-0.191***	-0.205***	-0.170***	-0.165**	-0.112*	-0.071	-0.074	-0.075	-0.083	-0.090
	(0.060)	(0.064)	(0.064)	(0.065)	(0.068)	(0.067)	(0.067)	(0.067)	(0.067)	(0.069)
Preventive Care	-0.575***	-0.534***	-0.506***	-0.485***	-0.431***	-0.421***	-0.406***	-0.406***	-0.404***	-0.400***
	(0.062)	(0.064)	(0.066)	(0.067)	(0.069)	(0.068)	(0.069)	(0.069)	(0.069)	(0.071)
Firm + Job Character.	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hourly Wages	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Job Tenure	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Demog and Fam Inc	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Additional Controls	No	No	No	No	No	No	Yes	Yes	Yes	Yes
Health Risk Taking	No	No	No	No	No	No	No	Yes	No	No
Financial Risk Taking	No	No	No	No	No	No	No	No	Yes	No
Income Gambles	No	No	No	No	No	No	No	No	No	Yes

Standard errors in parentheses

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

Notes: The dependent variables are the behaviors listed in the first column. For all health behaviors, higher values indicate more detrimental behaviors. The reported coefficients are those on the EPHI indicator from different specifications with different controls as listed at the bottom of the table.

Table IX: OLS Regression Results of Total Medical Expenditures on EPHI Status, MEPS

Age Group	1	2	3	4	5
25-30	813.4***	651.6*	845.1**	463.1	583.4*
	(274.8)	(339.8)	(340.0)	(351.8)	(347.7)
31-40	1201.6***	973.9***	1208.1***	842.2***	982.8***
	(224.1)	(263.5)	(264.5)	(290.4)	(288.3)
41-50	1358.3***	1524.9***	1438.6***	1323.4***	1125.8***
	(311.1)	(382.9)	(376.3)	(431.9)	(418.4)
51-64	3081.1***	2835.9***	2757.8***	2782.5***	2625.1***
	(370.7)	(443.6)	(457.1)	(499.2)	(514.0)
25-64	1792.0***	1544.8***	1465.5***	1193.5***	1192.6***
	(145.1)	(176.9)	(175.1)	(192.1)	(190.1)
Year Dummies	Yes	Yes	Yes	Yes	Yes
Firm and Job Charact.	No	Yes	Yes	Yes	Yes
Health and Age	No	No	Yes	No	Yes
Tenure, Educ, Inc, Demog, Risk Att	No	No	No	Yes	Yes

Standard errors in parentheses

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

Notes: The dependent variable is total annual medical expenditures in 2010 U.S. dollars. The reported coefficients are those on the EPHI indicator variable from different specifications. The regressions are run separately by the age groups indicated on the left hand side. Note that medical expenditures are measured at the annual level while most other variables, including insurance status, are measured at the interview round level (Round 1).

Table X: Logit Regression Results of Becoming Medicaid Recipient in Round 5, Ages 25-40, MEPS

	1	2	3	4
EPHI	-1.590***	-1.444***	-0.990***	-0.677***
	(0.175)	(0.187)	(0.221)	(0.225)
Year Dummies	Yes	Yes	Yes	Yes
Health (R1 and R5) and Age	No	Yes	Yes	Yes
Firm Characteristics	No	No	Yes	Yes
FT or PT, Temporary	No	No	Yes	Yes
Hourly Wages	No	No	Yes	Yes
Job Tenure	No	No	No	Yes
Education	No	No	No	Yes
Demog. and Fam. Income	No	No	No	Yes
Risk Attitudes	No	No	No	Yes
Observations	13459	12985	12101	11265

Standard errors in parentheses

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

Notes: The dependent variable is a dummy variable equal to 1 if the respondent has Medicaid in Round 5 and equal to 0 otherwise. The reported coefficients are those on the EPHI indicator variable (measured in Round 1) from different specifications. All those who received Medicaid in Round 1 are excluded from the sub-sample on which this analysis is conducted. The family income is from the first interview year (which includes Round 1, but not Round 5).

Table XI: Logit Regression Results of Becoming Not Employed in Round 5, Ages 25-40, MEPS

	1	2	3	4	5	6
EPHI (R1)	-0.899***	-0.681***	-0.626***	-0.612***	-0.523***	-0.356**
	(0.129)	(0.154)	(0.157)	(0.161)	(0.161)	(0.174)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm Characteristics	No	Yes	Yes	Yes	Yes	Yes
FT or PT, Temporary	No	Yes	Yes	Yes	Yes	Yes
Hourly Wages	No	Yes	Yes	Yes	Yes	Yes
Health and Age (R1)	No	No	Yes	Yes	Yes	Yes
Health (R5)	No	No	No	Yes	Yes	Yes
Job Tenure	No	No	No	No	Yes	Yes
Education	No	No	No	No	No	Yes
Other Demog. + Fam. Inc.	No	No	No	No	No	Yes
Observations	13824	12886	12582	12410	12318	11549

Standard errors in parentheses

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

Notes: The dependent variable is a dummy variable equal to 1 if the respondent is not employed in Round 5 and equal to 0 otherwise. The reported coefficients are those on the EPHI indicator variable (measured in Round 1) from different specifications. The family income is from the first interview year (which includes Round 1, but not Round 5).

Table XII: Logit Regression Results of Job Change from Round 1 to Round 5, Ages 25-40, MEPS

	1	2	3	4	5	6
EPHI (R1)	-0.883***	-0.479***	-0.467***	-0.463***	-0.294***	-0.259***
	(0.074)	(0.086)	(0.088)	(0.088)	(0.089)	(0.093)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm Characteristics	No	Yes	Yes	Yes	Yes	Yes
FT or PT, Temporary	No	Yes	Yes	Yes	Yes	Yes
Hourly Wages	No	Yes	Yes	Yes	Yes	Yes
Health and Age (R1)	No	No	Yes	Yes	Yes	Yes
Health (R5)	No	No	No	Yes	Yes	Yes
Job Tenure	No	No	No	No	Yes	Yes
Education	No	No	No	No	No	Yes
Other Demog. + Fam. Inc.	No	No	No	No	No	Yes
Observations	13237	12350	12143	11992	11928	11908

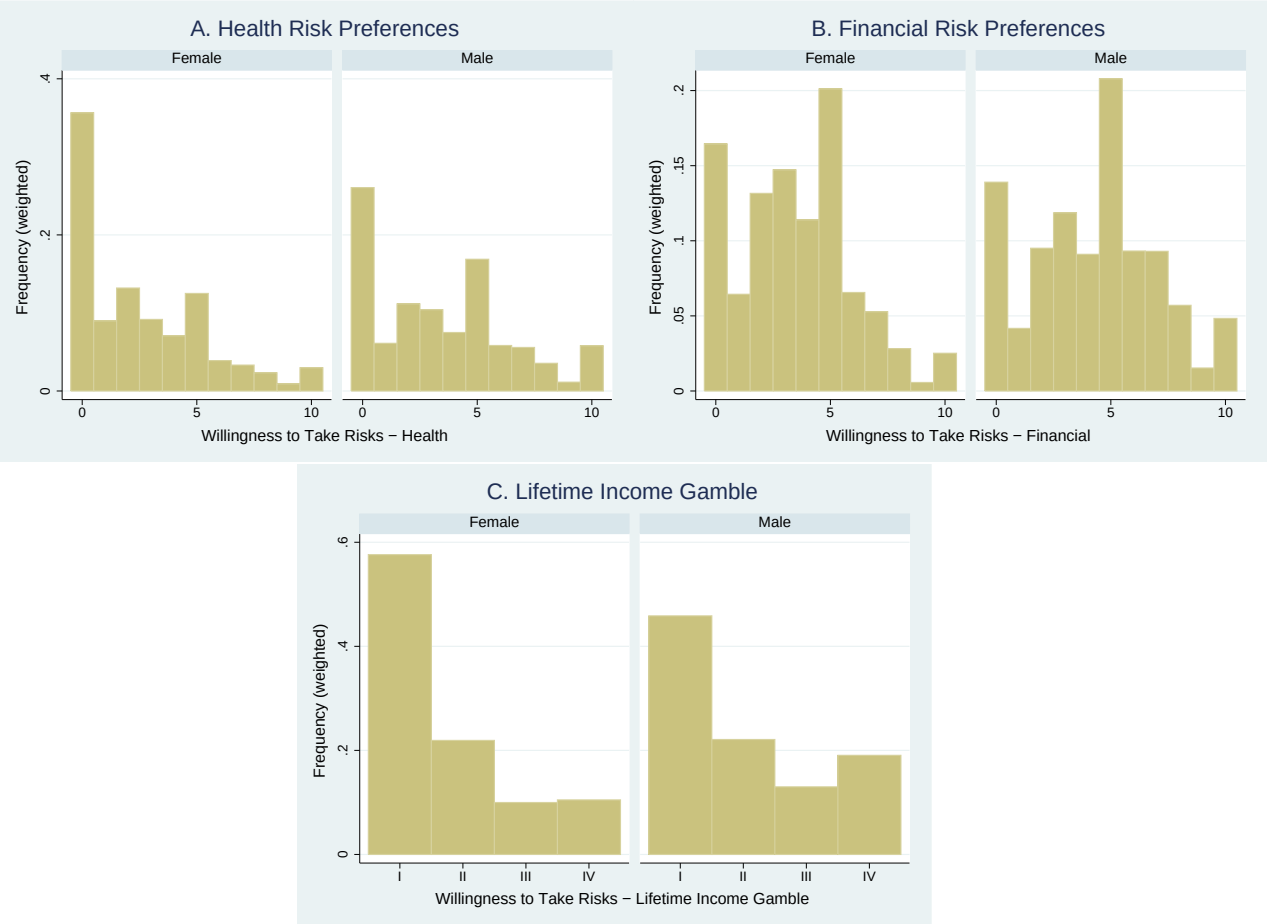
Standard errors in parentheses

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

Notes: The dependent variable is a dummy variable equal to 1 if the respondent has a different job in Round 5 than in Round 1, and equal to 0 otherwise. The reported coefficients are those on the EPHI indicator variable (measured in Round 1) from different specifications. The sub-sample on which this analysis is conducted includes only those who are employed in both Rounds 1 and 5. The family income is from the first interview year (which includes Round 1, but not Round 5).

Figures

Figure I: Willingness to Take Risks - Distributions



Notes: Higher numbers indicate greater willingness to take risks. Panels A and B plot the frequencies of the self-rated risk attitudes on a scale from 0 to 10. Panel C plots the frequencies of the four risk categories based lifetime income gamble questions.

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