Does the Availability of Parental Health Insurance Affect the College Enrollment Decision of Young Americans?*

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Abstract

The present study examines whether the college enrollment decision of young individuals (student full-time, student part-time, non-student) depends on the availability of health insurance from their parents. Our findings indicate that the availability of parental health insurance has strong significant effects on the probability that a young individual enrolls as a full-time student. A young individual who has access to health insurance via a parent is up to 20.5 percent more likely to enroll as a full-time student than an individual without parental health insurance. After controlling for unobserved heterogeneity this probablity drops to 5.7 percent but is still highly significant. We also find that the marginal effect of the availability of parental health insurance has a larger effect on older students between age $21-23$. We provide a brief discussion about possible implications of the Affordable Care Act 2010 in this context.

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1 Introduction

Recent estimates report that 45.7 million (15.3 percent) Americans do not have health insurance (DeNavas-Walt, Proctor and Hill-Lee (2005)). Of those uninsured the largest groups are young adults ages $18 - 24$ (28.1 percent), Hispanics (32.1 percent), and households with annual incomes below $\$25,000$ (24.5 percent). A striking pattern found in the data is that health insurance coverage rates of young adults drop significantly at the age of 19 except for those who attend college full-time (Kriss et al. (2008)). According to the Government Accountability Office (GAO (2008)), 80 percent of college students have health insurance coverage. Those most likely to be uninsured include minority students, part-time students, and students from low-income families. Being uninsured has also been linked to restricted access to health care, delays in needed health care, and less frequent contact with health care providers (compare Callahan and Cooper (2005) and Callahan, Hickson and Cooper (2006)).

To alleviate the situation of the young, various reform proposals to help cover young adults have been proposed. Some of these ideas included the extension of Medicaid, the extension of the age limit for dependent children from 19 to 22 and older in private insurance contracts, and some type of university provided low cost health insurance to cover the college student population (compare Holahan and Kenney (2008) and Kriss et al. (2008)). Recently policy makers have reacted and included a provision that allows young adults to stay on their parents' health insurance plans until they turn 26 in the Patient Protection and Affordable Care Act that passed in Spring of 2010. However, in evaluating these reforms and reform proposals it is important to understand the incentives that are present.

In this project we therefore investigate whether the availability of parental health insurance has an effect on the college enrollment decision of the young. In particular we are interested in whether or not students are more likely to enroll as full-time students when their parents do have health insurance that covers them. Many private group insurances allow insuring a dependent child up to age 24 if the child is a full-time student, which explains the higher coverage rates among the college population compared to members of the same age cohort (Holahan and Kenney (2008)).

Another interesting aspect of this question is that if there is a strong effect of the availability of parental health insurance on the enrollment decision of the young,

then the U.S. tax code actually provides an implicit subsidy to higher income students. Most health insurance contracts are provided via an employer. The employer contributions to these health insurance contracts (group insurance) are tax exempt. So if students of parents with such types of insurances are more likely to enroll as full-time students, then they are also indirectly benefiting from their parent's tax break.

Starting with Phelps (1973) and later Manning et al. (1987), demand estimation for health care provides strong evidence that people tend to be responsive to the price of health care and by extension to the price of health insurance. Because employer-provided health insurance is not taxed, price responsiveness is generally determined by examining the effects of taxes on coverage. Studies that isolate variations of tax rates across time (Long and Scott (1982) and Vroman and Anderson (1984)) and across tax brackets (Woodbury (1983), Holmer (1984), and Sloan and Adamache (1986)) suggest that people are responsive to the price of health insurance. Other studies have found that unique changes in the tax code can increase health insurance coverage among targeted populations (Gruber and Poterba (1994) and Baughman (2005)). Taken together, these results identify a downward sloping health insurance demand curve and suggest that workers are rational in their choices regarding the amount of health insurance coverage to purchase.

Recently, there has been a push beyond estimating price elasticity of demand for health insurance towards examining the effect of the presence of health insurance on labor supply (Gruber and Madrian (2002)). Not surprisingly, workers respond in predictable ways when public policy is crafted to provide health insurance under certain conditions for certain populations. Specifically, studies have focused on the effect of the presence of health insurance on retirement decisions. In the US and in Taiwan, access to post-retirement health insurance leads to earlier retirement as documented in Gruber and Madrian (1995), Madrian (1994), Rogowski and Karoly (2000), and Hsieh (2008). Labor supply decisions later in life thus appear to be influenced by the availability of health insurance.

But these effects of health insurance on labor supply do not appear to be restricted to end-of-career labor decisions. Similar to the retirement decision, schooling decisions for young adults may also be influenced by the availability of health insurance. First , the presence of parental health insurance has been shown to im-

prove educational outcomes in Levine and Schanzenbach (2009). This suggests that health insurance leading to better health may make college enrollment possible for some marginal students. Second, health insurance for young people often depends on parental income and employment (Collins et al. (2006), Kriss et al. (2008), GAO (2008)), but for college students the presence of health insurance can be completely dependent on whether or not the student is enrolled in school full-time. Collins et al. (2006) provide ample descriptive statistics highlighting this situation. Additionally, because financial aid and fellowships have already been found to impact the college enrollment decisions of young adults (see Van der Klaauw (2002), Linsenmeier, Rosen and Rouse (2006), and Cornwell, Mustard and Sridhar (2006)), the availability of parental health insurance coverage may serve as a tuition subsidy for a young adult desiring to be a full time student. At this point we are not aware of any analysis that examines the possibly causal relationship between parental health insurance and the college enrollment decision of young adults.

While financial aid and grants provide essential funding to allow low income students access to college, there is still a deficit in support for low-income students to enroll in college, particularly at a full-time status (Ehrenberg (2007), Tierney and Venegas (2009)). Bozick (2007) found that low-income students were more likely to be contributing to college tuition through working and living at home with their parents than students from higher income level families. These practices were found to contribute to low-income students' inability to continue their studies after the first year of college leading to set-backs in attaining financial security in young adulthood. Because full-time students are much more likely to complete their college degree than part-time students (Chen (2007)), parental health insurance provides full-time students with a significant tax break now and with a better chance to complete their college degree and earn more income over their lifetime. Thus, it is important to model this decision process to better understand the extent to which the presence of parental health insurance impacts college enrollment decisions and future income streams.

Using data from a national database, the Survey of Income and Program Participation (SIPP) in years 2001, 2004 and 2008 we find that a student who is insured via her parent's health insurance plan is 5.7 percent more likely to enroll as a full-time student than a student without parental coverage. According to the analysis,

if considering the decision of going to college at all, individuals with parental health insurance are 20.2 percent more likely to enroll in college as a full-time student. At the same time, a student with parental health insurance is 1.17 percent less likely to enroll as a part-time student.

The present study is important as it directly addresses a hidden "reverse" subsidy of higher income groups via tax free group insurance. The extent to which low-income and minority groups are excluded from this subsidy will support the need for additional policy changes, like the expansion of Medicaid or university health insurance packages for students who do not have health insurance from their parents, to accommodate the special needs of low-income families and minority youth. We also find that the introduction of the Affordable Care Act 2010 introduces new incentives for young adults with, possibly, unintended consequences.

The paper is structured as follows. The next section will introduce the empirical model. Section 3 describes the survey data. Section 4 presents the results. We conclude in section 5. The appendix contains all tables and figures.

2 The empirical model

The underlying decision process of an individual can be described as a two stage decision process as in figure 1. In the first stage the individual decides whether to become a student or whether to start working. In the second stage, the individual decides whether to enroll as a full-time student or as a part-time student. We use two separate approaches to estimate how the availability of parental health insurance will affect the probability of being a full-time student, a part-time student, or a non-student.

2.1 Multinomial Logit model on full-data set

In the first step we try to put minimum restrictions on the decision process and let the individual decide between all three options, full-time, part-time, or non-student. Since our model is invariant across alternatives (i.e. we only have case specific variables to work with), we use a multinomial Logit model of the following

form:

$$p_{ij} = \Pr\left[Primary - occupation_i = j|X_i\right] = \frac{\exp\left(\alpha_j + \beta_j X_i\right)}{\sum_{k=1}^{3} \exp\left(\alpha_k + \beta_k X_i\right)},\ j = 1, ..., 3, \tag{1}$$

where p_{ij} is the probability that individual i chooses primary-occupation j ={*Full-Time-Student*, *Part-time-student*, *No-student*} and X denotes the regressor matrix. This model is easy to implement but carries the strong assumption of independence of irrelevant alternatives, or IIA. We discuss tests of IIA and the problems with misspecification in the results section.

2.2 Probit model on limited data set

Since the choice between the three occupational choices can be driven by unobserved factors like innate ability that are very difficult to measure with the data from SIPP, we next attempt to control for these unobservables. Unobserved omitted variables like innate cognitive abilities could impact college enrollment decisions, but researchers have trouble separating these factors from learned skills that are more easily observed (Cunha and Heckman (2007), Anger and Heineck (2010*a*), and Anger and Heineck (2010*b*)). Innate cognitive abilities appear to be related to earnings (see Anger and Heineck (2010*a*)) but are not transmitted from parent to child as readily as learned skills (see Anger and Heineck (2010*b*)) so it's unclear what the impact, if any, of innate cognitive abilities will be on college enrollment decisions. We partly control for unobserved heterogeneity by estimating a simpler Probit model on a more homogenous group of individuals, namely students only.

We first construct a dummy variable indicating whether an individual is enrolled as full-time student or not. We then estimate a simple Probit model that does not require the IIA assumption of the multinomial Logit model and regress this dummy variable on a list of regressors X_i for individual i. This vector includes a variable indicating whether the student has health insurance via her parents, as well as many other individual and parental characteristics. The probability for being enrolled full-time can be written as

$$p_i = \Pr\left[EnrolledFullTime_i = 1|X_i\right] = \Phi\left(\alpha + \beta X_i\right), \tag{2}$$

where α is an intercept term, β is a slope vector, and X_i the regressor list of individual i, and $\Phi(.)$ is the cumulative distribution function of the standard normal distribution. We use this model on the full data set consisting of full-time students, part-time students, as well as non-students.

Second, in order to partly control for unobserved heterogeneity that is biasing the results in model (1) and (2), we next limit our analysis to individuals who have already decided to go to college and now choose between full vs. part time enrollment. These individuals are likely to be more homogenous than the overall group of $17-23$ year olds as can easily be seen from the summary statistics presented in the next section. This model is therefore less likely being affected by endogeneity issues of parental health insurance. The Probit model for this version can be written as

$$p_i = \Pr\left[EnrolledFullTime_i = 1 | X_i, student\right] = \Phi\left(\alpha + \beta X_i\right). \tag{3}$$

2.3 Heckman selection model

In order to estimate the two-step decision process that is laid out in figure 1, we finally employ a selection model a la Heckman

Selection and outcome equations. A bivariate sample selection model is defined by a *selection equation* (sometimes called a participation equation) and an *outcome equation*. The selection equation defines a latent variable that measures the difference between a person's reservation value for enrolling as a student and the net price of enrolling as student. Whenever the reservation value exceeds the price, the individual enrolls as student, so that the observed indicator variable is $d\_Student = 1$ and zero otherwise. The outcome equation is a linear probability model and defines the probability of enrolling full-time. Naturally it can only be observed if $d\_Student = 1$. The error terms of both selection- and outcome equations are possibly correlated. Separate estimations of the two equations would assume independence and therefore lead to inconsistent estimates of the slope parameters of the explanatory variables if the errors are in fact correlated.

Estimation techniques. Estimation of the bivariate sample selection model by ML is straightforward given the additional assumption that the errors are jointly normally distributed and homoskedastic. If there is no correlation between the two error terms after controlling for observed individual characteristics, then the two

equations can be modeled separately, and a two-part model is appropriate. However, if the errors of the selection equation and the outcome equation are correlated, then there are some unobserved factors affecting both processes. In this case the selection is on unobservables and selection models are more appropriate (see Cameron and Trivedi (2005) for discussion of the properties of this estimator).[1]

3 Data

3.1 The Survey of Income and Program Participation (SIPP)

The Survey of Income and Program Participation (SIPP) is a longitudinal survey where each household is reinterviewed every four months. We use a total of six waves of SIPP between the years 2001, 2004 and 2008: Wave 1 and wave 4 of year 2001, wave 1 and wave 4 of year 2004 as well as wave 1 and wave 4 of year 2008.

Information collected in SIPP falls into two categories: core and topical. The core content includes questions asked at every interview and covers demographic characteristics, labor force participation, program participation, earned and unearned income, transfer payments, non-cash benefits from various programs, asset ownership, and private health insurance. Most core data are measured on a monthly basis, although a few core items are measured only as of the interview date, once every four months. The topical questions produce more detailed information about certain aspects (e.g. assets and liabilities, school enrollment, marital history, fertility, migration, disability, and work history) and are asked less frequently.

After cleaning the data $33,745$ individual observations between age 17 and 23 remain. See table 1 for a summary of all used variables. We first use a pooled data

[1] An additional procedure, Heckman's two-step procedure, augments the OLS regression by an estimate of the omitted regressor using a Probit estimator on the selection equation. This omitted regressor, the inverse Mills ratio, is then introduced into the outcome equation as an additional explanatory variable. The correlation between the two errors can then be estimated. The Heckman two-step estimator only requires a linear relationship between the two error terms and not joint normality as with the ML estimator. It is therefore less restrictive and more robust to possible misspecification of the error characteristics. Another procedure is Heckman's two-step estimator with exclusion restrictions. This estimator does not exclusively rely on the non-linearity of the model for parameter identification which could lead to weak identification and hence biases. Since it is difficult to find explanatory variable that affect the probability of enrolling as student at all but not the probability to enroll as full-time student, we use the ML specification with the joint normal assumption on the errors and rely on non-linearity for identification.

set where roughly 14.3 percent (4,825 individuals) of all observations are from wave 1 of year 2001, 13.1 percent (4,414 individuals - almost all repeated from wave 1) are from wave 4 of year 2001, 18.7 percent (6,310 individuals) are from year 2004− wave 1, 18.6 percent (6,289 individuals - almost all repeated from wave 1) are from year 2004− wave 4, 17.9 percent (6,029) are from year 2008− wave 1, and 17.4 percent (5,878 individuals - almost all repeated from wave 1) are from year 2008− wave 4.

The panel structure is only given for waves that are from the same year so that wave 4 individuals in year 2001 are the same individuals as wave 1 individuals in 2001, just one year older. The data between wave 1 and 4 shows little variation for all years other than an increase in the age of individuals and their parents. We therefore pool the data and control for time and family effects in our main estimates. However, in order to check the robustness of our estimates we also control for individual fixed effects using the full panel structure in the results section of this paper.

We also merge parental information into the young persons data files. This was done by using information about the head of the household and merging the father's information into the young persons' data file. If the father was missing, we used the mother's information. We indicate these variables with the prefix Parent. Summary statistics of the sample with parental information are presented in table 1.

3.2 Dependent variable

In order to study a more general process of occupational choice, we create a three state multinomial variable called *Primary-occupation* = {Student full-time, Student part-time, Non-student} using information from the variables $EnrolledFullTime$ and $EnrolledPartTime$ provided by the data. If a person is neither enrolled full-time nor part-time, then we assume the person is not a student. The pooled sample consists of 21,014 full-time students, 2,017 part-time students, and 10,714 individuals that are not enrolled in college. We present summary statistics of the pooled sample by occupational choice in tables 3 to 5. Full-time students are overrepresented in our sample which has partly to do with the composition of SIPP itself but also with the merging of parental information into the core data of $17-23$ year olds which is more readily available for full-time students than for non-students. However, we conduct robustness checks of our results and find that even after randomly dropping

various groups of full-time students our results still hold and are highly significant.[2]

3.3 Explanatory variables

We use the following independent variables in the regressions explaining occupational choice in model 1 and full vs. part-time enrollment of students in model 2.

Health insurance. The indicator variable *Third-party-health-insurance* measures whether individuals are covered by someone else's plan. The survey asks whether an individual is covered by her own plan, someone else's plan, both or neither. If the individual responds that her coverage is via someone else's plan only then *Third-party-health-insurance* is set equal to one.

The variable *Third-party-health-insurance* is not restricted to measure only the availability of parental health insurance but also includes unsubsidized health insurance from other private health care plans. In order to measure whether the health insurance of an individual is from her parents, we create a binary variable $ParentHealthIns$ which is set equal to one whenever the variable *Third-party-health-insurance* indicates that the individual has health insurance through a third party. Also, we only assign a value of one to this variable if the young individual is not on Medicaid and is unmarried in order to exclude cases where young individuals get insurance from their spouses. The variable $ParentHealthIns$ is a better proxy for the kind of government subsidized health insurance that full-time students get via their parents than the original variable *Third-party-health-insurance*.

The indicator variable $PrivateHealthIns$ measures whether the person has health insurance other than Medicare or Medicaid. The indicator variable $LostParentIns$ asks for the reasons why the individual is not covered by any health insurance. If the individual answers that she has no health insurance because she is no longer covered by parents, then $LostParentIns$ is set equal to one.

Demographic variables. We measure an individual's age, health, race, and gender. As expected for this age group with average age of 19.3 we find that only a very small share of 5.4 percent reported a physical or mental health problem. The sample includes 15.0 percent black individuals and 10.3 percent Hispanic individuals. There are 46.7 percent females in the sample and 2.0 percent report that they are currently married. If we compare the subset of full-time students in table 3 we find

[2]Estimation results are available upon request from the authors.

that the full-time student population is on average younger (18.7 years), healthier (3.8 percent report a physical or mental health problem), less diverse (13.7 percent black and 8.4 percent Hispanic), and more gender balanced (49.7 percent is female).

Income. Income is reported in thousands of dollars per month. The majority of individuals between $17-23$ report that they had income in the reference period (60.9 percent). Only two individuals report a monthly income larger than $\$10,000$. We drop these two observations from the sample. We also drop seven individuals with negative income. We also measure whether an individual is supported by low income (Pell) grants, receives college assistance, is supported by other Federal grants, lives on student loans, or is the recipient of scholarships.

Parent information. The parental characteristics that we control for include a set of dummy variables for no-high school, highest degree high school, and highest degree college. We use high school as reference category and do not include it in the regression analysis. We control for parent health and age. The average age of a parent is 48 years and 12.5 percent report that they have a physical or mental health problem. Roughly 14.2 percent of the parents have not finished high school compared to 25.6 percent who have a college degree (the dummy variable that measures high school degree only is again the base category that is dropped from the analysis). Since we use household heads as parent proxy we only have 27.1 percent female parents in the sample. The parents' household earnings distribution is between \$0 and $\$59,728$ per month and highly right skewed. All variables describing parental characteristics are denoted with the prefix $Parent\_$ in all tables presented in the appendix.

4 Results

4.1 A multinomial Logit model of occupational choice of young individuals

In this section we present results for the multinomial Logit model of occupational choice, between (1) full-time student, (2) part-time student, and (3) no-student. The model is formally described by expression (1) in the model section. This model assumes independence of irrelevant alternatives (IIA assumption). We will test for

this assumption is this section.

Table 6 presents the marginal effects of the exogenous regressors. Since the model is non-linear, all marginal effects are presented for a base category individual defined as an 18-year old unmarried white female with median income, no mental health problems, no parental health insurance, no private health insurance, and no public or private scholarships or grants whose parent is a 50 year old male, has a high school degree, does have private health insurance, and does not have a physical or mental health problem.

We find that the marginal effects for the base category individual indicate that the availability of parental health insurance increases the probability of being a full-time student by 20.2 percent. At the same time the availability of parental health insurance decreases the probability of enrolling as a part-time student by about 1.2 percent and it decreases the probability of not enrolling in college by 19.0 percent. These are all highly significant coefficient estimates.[3]

Age decreases the probability of being enrolled as a full-time student and increases the probability of being a part-time or non-student (by definition). We cannot find a significant relationship between race and the college enrollment decision except for Hispanic individuals who seem more likely to choose being a part-time student. Females have a higher probability of being enrolled full-time at college, they also face a lower probability of not going to college at all. Being married decreases the likelihood that an individual enroll full-time and increases the chance that an individual does not attend college. As expected, income is negatively correlated with being enrolled full-time in college whereas the availability of grants and scholarships increase the probability of enrolling full-time.

Among the parental characteristics two stand out. A parent's years of education and income do both significantly increase the probability of an individual to enroll full-time at a university or college. Age, gender and parental health status do not play a role in this decision.

The multinomial Logit model carries the IIA assumption (independence of irrelevant alternatives) which assumes that the relative probability of choosing to be a full-time student over being a non-student is independent of the option of being a part-time student. This is potentially a very strong assumption. A Hausman test of

[3]Except for rounding errors, the marginal effects in the table will add up to zero.

IIA is inconclusive as it rejects the null hypothesis of IIA when full-time student is the omitted category and fails to reject when part-time student is the omitted category. The Small-Hsiao tests of IIA does not reject IIA. Finally, a Hausman test based on seemingly unrelated estimation (see Hausman and McFadden (1984)) rejects the IIA assumption in which case the multinomial Logit model would be misspecified.[4]

Since we are limited to case specific variables (e.g. individuals who chose to be workers do not report the cost of college, or student loan availability etc.) we cannot specify a conditional or nested Logit model, a model that would not assume IIA. We therefore proceed with a Probit specification that does not assume IIA.

4.2 Probit model of choosing full-time student status

In order to relax the IIA assumption we use a Probit model and estimate the model using a binary choice variable $EnrolledFullTime$ that is set equal to unity whenever an individual between $17-23$ is enrolled full-time at a college or university. That leaves a residual group of part-time students and non-students. The estimation results of the simple Probit model are presented in the first column of table 7.

We again report marginal effects for a base category individual defined as an 18-year old unmarried white female with median income, no physical or mental health problems, no parental health insurance, no private health insurance, and no financial assistance from either the college or from public sources whose parent is a 50 year old male, has a high school degree, does have private health insurance, and does not have a physical or mental health problem.

In the most general analysis where the entire population of students and non-students is examined, the representative student (as defined above) is 20.5 percent more likely to enroll full-time if parental health insurance is available (compare the first column in table 7). The standard errors are calculated by clustering to a parent identification number so that information provided by siblings is correctly accounted for. This regressor (i.e. $ParentHealthIns$) is highly significant.

We also find that individuals with physical or mental problems are on average 8.5 percent less likely to be enrolled full-time (i.e. $PhysMentalProblem$). In addition,

[4]All three tests are implemented in Stata using the mlogtest command by Long and Freese (2006).

the older the individual is, the less likely the individual is to be enrolled full-time. As expected we also find that grants, scholarships, and student loans all increase the probability of being a full-time student. Being female also increases the probability of full-time status (4.3 percent). Perhaps somewhat surprisingly, there are no significant correlations with race indicator variables. Finally, family background is a good predictor for a young individual's college decision. Students whose parent has a college degree are 13.4 percent more likely to be enrolled full-time (i.e. $Parent\_College$). Children with high-income parents are only slightly more likely (0.8 percent) to enroll full-time.

Controlling for unobserved heterogeneity. This first approach falls short in two important dimensions. The first is that the choice set is overly simplistic as the individual chooses between full-time student on one hand vs. part-time AND non-student on the other hand. The coefficient estimates of the explanatory variables therefore do not distinguish between important effects that can be caused by the potential choice of part-time student vs. non-student. In addition, the results might be driven by some unobserved heterogeneity that distinguishes the pool of students from the pool of non-students and that drives both the college enrollment decision and the availability of parental health insurance (e.g. endogeneity problem).

Therefore we repeat the analysis and concentrate only on the subgroup of students. This effectively controls for unobserved heterogeneity that our model can otherwise not capture explicitly. In the second column in table 7 we run the same Probit regression model on the student population only, so that individuals who are not enrolled full-time, are enrolled part-time by definition. When concentrating on the student population only, we can automatically control for unobserved heterogeneity that distinguishes the student population from the non-student population that we cannot explicitly control for with our data in the first model (e.g. higher innate learning ability of students vs. non-student, etc.).

We find that our earlier results still hold, but that some regressors lose their explanatory power. First, the availability of parental health insurance only causes an increase in the probability of being a full-time student of 3.8 percent as opposed to 20.2 percent in the previous model. We would of course anticipate such a drop since we now look at the pool of students, who effectively have decided to attend college already and the only decision left is whether to enroll full-time or part-time.

However, parental health insurance is still highly significant in affecting this choice.

Once students decide to go to college the gender dummy for female, being married, private health insurance, and Pell Grant availability become insignificant. The most interesting drop in significance is probably the one for the gender dummy. Earlier being female increased the probability of full-time enrollment by 4.3 percent, however, once we reduce the choice to full vs. part-time enrollment, gender becomes insignificant. So gender only plays a role in the initial decision whether to go to college at all, but once that decision has been made, student decisions about enrollment status between men and women are indistinguishable.

In addition, it is confirmed that students whose parents have no high school degree are not distinguishable from students whose parents do have a high school degree concerning their enrollment decision (full vs. part-time). This is partly due to attrition in the sample of students with parents who have no high school degree. In addition, we find that whether parents do have a college degree is still highly significant and increases the probability that the student is enrolled full-time. Parental income, measured as household income, becomes insignificant as well.

Baseline probabilities and marginal effects by age and income. We next investigate potential non-linearities in the model that controls for heterogeneity by calculating the probability of the baseline individual (i.e. 18− year old female etc.) enrolling as full-time student over age. We report these results in panel one of figure 2. We see that younger students have a higher probability to enroll as full-time students (about 95 percent for 17 year olds). This probability then starts to drop non-linearly as the individual gets older. A 23-year old has only a 73 percent probability to enroll full time. In panel two of figure 2 we calculate the marginal effect of the availability of parental health insurance on the probability to enroll as full-time student for the baseline individual. We see that for a young individual the marginal effect of parental health insurance is smaller (about 4 percent) than for an older student (about 13 percent). The older the student gets the larger the marginal effect of parental health insurance on the probability of enrolling as full-time student.

The developmental period of emerging adulthood, experienced from 18 to 25 years old, marks a time where young people experience a more transient lifestyle (see Arnett (2000)). Typically, during this time, stability in choices such as living arrangements and school attendance change at an elevated rate. The data reflect

these changes where older students are less likely to enroll as full-time students (see panel 1) as they become more at risk to either drop out of college or scale back their college activities (i.e. become part time students) due to events accompanying maturing into adulthood (i.e. need for independence from parents, jobs, acceptance of responsibilities etc.). Having access to parental health insurance under the condition of being enrolled full-time at college therefore presents a stronger factor in being enrolled full-time for a 23 year old than for a 17 or 18 year old individual who may not yet acknowledge needs such as having health insurance.

We next present a similar graph over household income in figure 3. Both panels in this figure indicate that changes in levels of income do not have strong effects on the baseline probability to enroll full-time and the marginal effect of parental health insurance. This is not surprising as parental income was not a significant regressor in model (3) as one can see in column two of table 7. However, we do find that for higher income groups the marginal effects of parental health insurance become less significant as indicated by the increased error bounds (see the confidence interval widening). This result has to be interpreted with caution though as it does not necessarily mean that there is no marginal effect of parental health insurance on students with high-income parents. This drop in significance could be driven by the fact that the sample contains very few observations of high income groups so that the marginal effects in this range are imprecisely estimated. On the other hand, it does not seem unreasonable that parental health insurance has small or no effects on students whose parents have high incomes.

Average marginal effects. Due to the non-linearity of our econometric model we have so far presented marginal effects of a baseline individual. In table 8 we also present the marginal effects of the two Probit models evaluated at the average of the explanatory variable. The marginal effects at the average of our sample are qualitatively the same as the ones reported for the 18− year old female baseline individual. Quantitatively though it turns out that the average marginal effects of the regressors tend to be larger than the marginal effects reported for the baseline individual in tables 6 and 7. This is not surprising as our baseline individual is likely to be affected less by the explanatory variables in terms of her enrollment decision due to her age. This can also be seen in figure 2 where we see that the marginal effects of parental health insurance are an increasing function of age. In other words,

evaluating the estimates at the average values of covariates strengthens our results.

Individual fixed effects. We finally use the panel structure within the years 2001, 2004 and 2008 and estimate a linear probability model of being enrolled full-time with individual fixed and random effects to control for unobserved individual heterogeneity like ability. Table 9 reports the results of these estimates. A Hausman test confirms that fixed effects are present and that the random effects model is likely to be inconsistent. Either way, all four panel estimator models confirm our earlier results and show that parental health insurance increases the probability to enroll as full time student significantly.

4.3 Heckman selection model

The results of the estimated selection model are reported in table 10. This model closely mimics the suggested decision process introduced in figure 1. We again present marginal effects of all covariates evaluated at the sample average and provide three marginal effects estimates that are customary in the literature on sample selection models.

The first column contains the marginal effects for the probability of the variable $EnrolledFullTime$ being observed or $\partial \Pr(EnrolledFullTime \text{ observed})/\partial x_i$. The second column presents the marginal effects for the expected value of $EnrolledFullTime$ conditional on being observed: $\partial E[EnrolledFullTime \mid EnrolledFullTime \text{ observed}]/\partial x_i$. Finally, column three shows the marginal effects for the expected value of Enrolled full-time, $\partial E[EnrolledFullTime]/\partial x_i$. The three sets of marginal effects in case the covariate x_i is an indicator variable are calculated as (here we define $y = EnrolledFullTime$) :

$$\Pr(y_i \; observed | x_i = 1) - \Pr(y_i \; observed | x_i = 0),$$

$$E[y_i \mid y_i \; observed, x_i = 1] - E[y_i \mid y_i \; observed, x_i = 0],$$

$$E[y_i \mid x_i = 1] - E[y_i \mid x_i = 0].$$

From table 10 we can again see that the effect of parental health insurance on being

enrolled as full time student is again highly significant and slightly larger than the marginal effects of our earlier Probit estimates.

4.4 Implications

We briefly summarize the incentive structure concerning parental health insurance and full-time student status. We first describe the incentive structure before the Affordable Care Act (ACA, a.k.a. the Obama health reform) passed in early 2010 in the first row of table 11. The pre-ACA policy stipulated that students be enrolled full-time in order to stay on their parents' health insurance. This was generally possible until age 24. That is, this policy provided an incentive to be enrolled full-time for 17-24 year olds because it came with the additional benefit of "free" health insurance from parents. Consequently this age group had reduced incentives to enroll part-time (because they would then lose the insurance) or work full-time (because they would also lose free parental health insurance and be likely to not have acceptable health insurance coverage in their first job). To some extent students who were enrolled full-time had an incentive to postpone entering the labor force because they would lose their free health insurance from their parents. Students therefore had an incentive to postpone graduation. Parental health insurance was lost for young adults in the 24-26 age group under the pre-ACA policy, so those individuals were exposed to high risk in becoming uninsured and faced strong incentives to find full-time work with employer provided health insurance.

Under the ACA 2010 (second row in table 11) the incentive structure changes. Individuals of group 1 now have an incentive to enroll part-time only or work while keeping their parental health insurance. At the same time, it will be easier for low-income students, who before could not be enrolled full-time due to financial constraints, to study part-time while keeping parental health insurance. Group 2 now has a lower risk of being uninsured, but they also have a greater incentive (compared to pre-ACA days) to postpone graduation and a reduced incentive to find full-time work.

Back-of-the-envelope calculation. We next provide a brief back-of-the-envelope calculation to highlight the impact of the results from our empirical study. In fall 2007, there were approximately 10.6 million undergraduate students $18-24$

years old in the US. Of these undergraduates, approximately 8.3 million were full-time and 2.3 million were part-time (Snyder, Dillow and Hoffman (2008)). Additionally, almost 19 million individuals between the age of $18-24$ were not enrolled in a degree-granting institution.[5] Using these 2007 numbers, we can assume that under a policy world where parental health insurance is tied to full-time student status (pre-ACA), any incoming cohort of $17-18$ year-olds would have roughly 28.34 percent enroll as full-time students, 7.76 percent would enroll as part-time students, and 63.90 percent would not enroll at all.

For the sake of the following discussion we assume that the coefficient estimates on parental health insurance in table 8 (i.e. 19.2 percent and 5.7 percent respectively) measure the increase in the probability due to the law specifically tying full-time status and eligibility for parental health insurance together. In this case our estimates in table 8 suggest that under the Affordable Care Act, available health insurance for all $17-23$ year-olds would decrease the probability to enroll as a full-time student by 19.2 percent to 9.1 percent as parental health insurance is no longer tied to full-time status. When looking only at the student population, the probability to enroll as a full-time student decreases by 5.7 percent to 72.8 percent. For all individuals age $17-23$ in an ACA policy world, our results suggest that $941,032$ fewer individuals could choose to become full-time students.

Chen (2007) finds that 43.7 percent of full-time students earn their bachelor's degree within six years of first enrolling, while between 6.9 percent and 25 percent of part-time students earn their degree in the same time. The almost one million individuals that are no longer full-time students in the ACA policy world (compared to a pre-ACA world) will either switch to being a part-time student or else not enroll in school at all. We can set a lower bound on our estimate of the impact of the ACA on US income if we assume that all the switches are to part-time students. In this case, after six years there could be $261,136$ fewer college graduates annually on the market. In setting an upper bound on the impact of the ACA on US income, we assume that all the switches are to individuals not enrolling in school at all, suggesting there could be $411,231$ fewer college graduates on the market. If we restrict our attention to just the student population, we expect $100,852$ full-time

[5] We calculated this number using data from table 2 in the Annual Estimates of the Resident Population by Sex and Selected Age Groups for the United States: April 1, 2000 to July 1, 2008 (NC-EST2008-02), Population Division, U.S. Census Bureau, Release Date: May 14, 2009.

students to switch to part-time status, which would result in 27,986 fewer college graduates on the market.

Recent estimates indicate that college graduates earn almost $20,000 more annually than high school graduates. If we look at all young adults age 18-24, we estimate that the ACA could decrease US income by between $5 billion and $8 billion annually after a six year period has passed and fewer individuals maintain full-time student status. Restricting our focus to just the student population suggests US income could drop by about $0.55 billion. This figure is lower since we assume that all the switches are from full-time to part-time status and that all individuals are students. It must be noted that this example provides only a very rough calculation about one possible unintended consequence of the ACA which does not factor in the many additional effects of the ACA that may actually increase the number of total students (e.g. pricing restrictions on insurance companies, reduction of life-time limits, subsidies to buy health insurance, etc.).

5 Conclusion

While our analysis does not present a dynamic view of the college enrollment decision process, it does present evidence that access to parental health insurance can be a predictor of full-time college enrollment. A full-time schedule allows students to complete degrees in shorter amounts of time and to access benefits of college degrees in less time than it takes students who are not enrolled full-time. This may contribute to students from higher income levels being better able to attain socioeconomic status similar to that of their families of origin or higher, while students from lower income families are less able to bridge to higher income levels in adulthood.

Bozick (2007) suggested that more support is needed, in addition to grants and aid, to provide better security for low-income students in their transition to adulthood.[6] Due to the growing concern that low-income students are not completing

[6]The DREAM Act of 2010, which was not passed, is another attempt along these lines. It is intended to grant conditional nonimmigrant status to certain unauthorized residents which would make them eligible for federal student loans. Congressional Budget Office (CBO) cost estimates of the proposed bill include the effect of higher tax revenues from increased reporting of employment income by parents, but do not include the effect of higher tax revenue from higher incomes due to an increased number of college graduates. This is puzzling since a major provision of the bill requires unauthorized residents addressed by this bill to be admitted to a college or university and

college (McNeil and Klein (2009)), the need for accessible health insurance should be one support that is considered. As policy related to health care access is debated, the discussion should include access to resources that may be impacted by health insurance coverage. Clearly issues related to health are at stake, but other factors that are affected by access to health insurance and support enriching opportunities should be considered. Low-income youth transitioning to adulthood face a number of challenges including the daunting task of determining if college is a viable option. In making this decision, more support should be offered to meet student needs and increase the likelihood that students will attend college full-time. But access to health insurance for young adults without a tie to full-time student status would potentially provide an unintended consequence that stands in the way of college enrollment and completion.

Our results carry policy implications for reforming the health insurance environment for young Americans. Since the majority of health insurance contracts from parents are employer provided and thus tax free, there seems to be a reverse subsidy to higher income young people who are now more likely to enroll as full-time students in order to benefit from this subsidy. The Patient Protection and Affordable Care Act that passed in 2010 now includes a provision that allows young adults to stay on their parents' health insurance plans until they turn 26 regardless of student status. It is expected that about 1.2 million young adults could eventually take advantage of the new rule after becoming active in the fall of 2010. This reform, to some extent, removes some of the incentive to be enrolled full-time. We plan to explore the effects of this reform on student enrollment and how it addresses the reverse subsidy issue in future research.

despite CBO's prediction that college and university enrollments will increase as a result of the bill. Note that our back-of-the-envelope calculations focus exclusively on estimating the change in incomes from changing college and university enrollments as a result of the ACA.

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6 Appendix

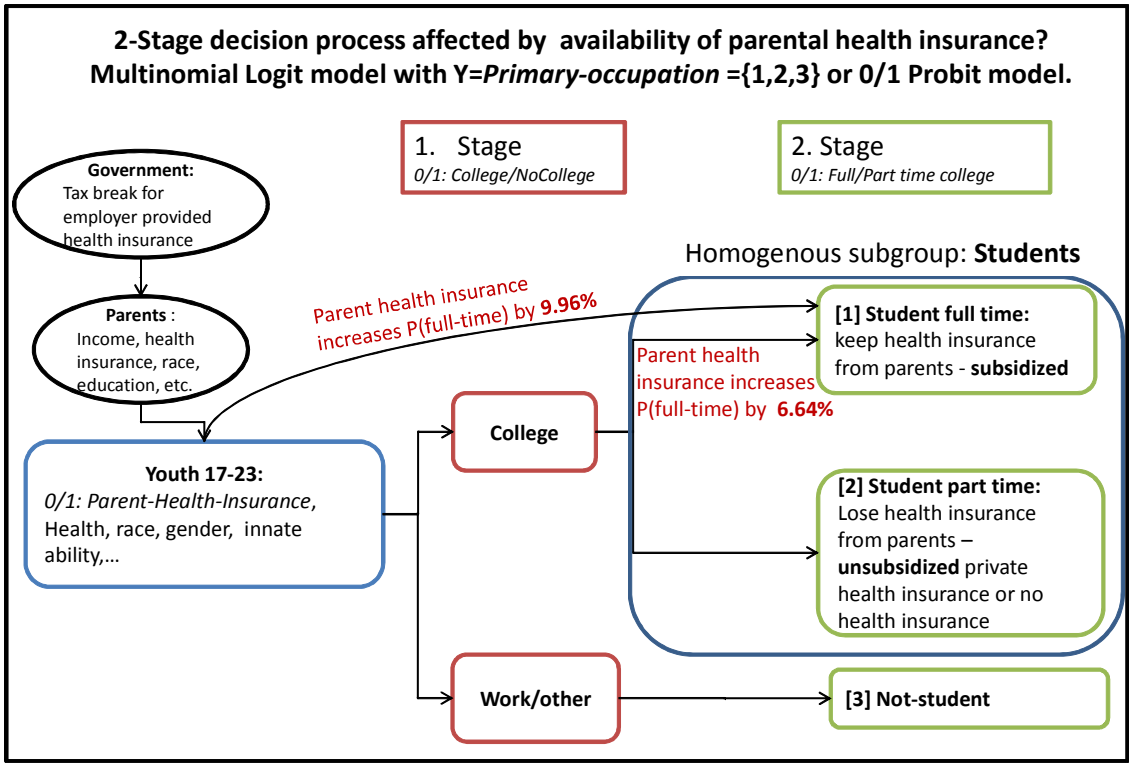

Figure 1: Two stage decision process of a young individual deciding to go to college or not.

Table 1: Summary statistics of 17-23 year olds: SIPP of 2001, 2004, and 2008 incl. parent information

Variable	Mean	(Std. Dev.)	Min.	Max.	N
ParentHealthIns	0.504	(0.5)	0	1	33745
EnrolledFullTime	0.623	(0.485)	0	1	33745
EnrolledPartTime	0.06	(0.237)	0	1	33745
WorkFullTime	0.178	(0.383)	0	1	33745
WorkPartTime	0.305	(0.46)	0	1	33745
PrivateHealthIns	0.674	(0.469)	0	1	33745
LostParentIns	0.018	(0.131)	0	1	33745
PhysMentalProblem	0.054	(0.226)	0	1	33745
Age	19.271	(1.891)	17	23	33745
AgeSquared	374.961	(74.608)	289	529	33745
Race_Black	0.15	(0.357)	0	1	33745
Race_Hispanic	0.103	(0.303)	0	1	33745
Female	0.467	(0.499)	0	1	33745
Married	0.02	(0.139)	0	1	33745
Income	0.496	(0.803)	0	10	33745
PellGrant	0.07	(0.256)	0	1	33745
CollegeAssistance	0.015	(0.123)	0	1	33745
OtherFedGrant	0.01	(0.099)	0	1	33745
StudentLoan	0.087	(0.282)	0	1	33745
Scholarship	0.06	(0.237)	0	1	33745
StateScholarship	0.031	(0.172)	0	1	33745
Parent_PrivateHealthIns	0.747	(0.435)	0	1	33745
Parent_NoHighSchool	0.143	(0.35)	0	1	33745
Parent_College	0.255	(0.436)	0	1	33745
Parent_PhysMentalProblem	0.125	(0.331)	0	1	33745
Parent_Age	47.995	(6.735)	31	85	33745
Parent_Female	0.271	(0.445)	0	1	33745
Parent_HHIncome	5.850	(5.364)	0	59.728	33745
Year 2001, Wave 1	0.143	(0.35)	0	1	33745
Year 2001, Wave 4	0.131	(0.337)	0	1	33745
Year 2004, Wave 1	0.187	(0.39)	0	1	33745
Year 2004, Wave 4	0.186	(0.389)	0	1	33745
Year 2008, Wave 1	0.179	(0.383)	0	1	33745
Year 2008, Wave 4	0.174	(0.379)	0	1	33745

Table 2: Summary statistics per wave

	2001: wave 1	2001: wave 4	2004: wave 1	2004: wave 4	2008: wave 1	2008: wave 4
ParentHealthIns	0.526	0.514	0.507	0.486	0.498	0.501
	(0.007)	(0.008)	(0.006)	(0.006)	(0.006)	(0.007)
EnrolledFullTime	0.610	0.635	0.606	0.655	0.576	0.656
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)
EnrolledPartTime	0.065	0.051	0.059	0.064	0.060	0.056
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
WorkFullTime	0.205	0.175	0.182	0.171	0.192	0.147
	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
WorkPartTime	0.313	0.307	0.311	0.319	0.291	0.288
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)
PrivateHealthIns	0.711	0.689	0.681	0.718	0.631	0.623
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)
LostParentIns	0.024	0.017	0.020	0.010	0.019	0.017
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
PhysMentalProblem	0.056	0.042	0.057	0.055	0.058	0.054
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Age	19.207	19.248	19.277	19.279	19.290	19.308
	(0.027)	(0.028)	(0.024)	(0.024)	(0.025)	(0.024)
AgeSquared	372.503	373.958	375.213	375.235	375.804	376.304
	(1.074)	(1.106)	(0.943)	(0.938)	(0.977)	(0.966)
Race_Black	0.160	0.164	0.143	0.142	0.152	0.145
	(0.005)	(0.006)	(0.004)	(0.004)	(0.005)	(0.005)
Race_Hispanic	0.003	0.004	0.126	0.123	0.153	0.158
	(0.001)	(0.001)	(0.004)	(0.004)	(0.005)	(0.005)
Female	0.468	0.469	0.458	0.468	0.472	0.469
	(0.007)	(0.008)	(0.006)	(0.006)	(0.006)	(0.007)
Married	0.021	0.023	0.022	0.016	0.021	0.017
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Income($ 1000 month)	0.431	0.446	0.475	0.467	0.612	0.520
	(0.009)	(0.011)	(0.010)	(0.009)	(0.012)	(0.011)
PellGrant	0.065	0.058	0.065	0.073	0.066	0.092
	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)
CollegeAssistance	0.017	0.013	0.017	0.016	0.014	0.015
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
OtherFedGrant	0.008	0.006	0.009	0.007	0.014	0.015
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
StudentLoan	0.077	0.067	0.083	0.092	0.094	0.103
	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)
Scholarship	0.053	0.050	0.055	0.064	0.063	0.069
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
StateScholarship	0.023	0.029	0.026	0.028	0.039	0.038
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Parent_PrivateHealthIns	0.777	0.762	0.762	0.773	0.718	0.699
	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)	(0.006)
Parent_NoHighSchool	0.187	0.175	0.148	0.100	0.156	0.109
	(0.006)	(0.006)	(0.004)	(0.004)	(0.005)	(0.004)
Parent_College	0.230	0.248	0.250	0.259	0.267	0.268
	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)
Parent_PhysMentalProblem	0.132	0.108	0.117	0.128	0.128	0.136
	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Parent_Age	47.234	47.523	47.717	48.028	48.399	48.825
	(0.093)	(0.099)	(0.082)	(0.084)	(0.089)	(0.093)
Parent_Female	0.269	0.273	0.262	0.268	0.281	0.274
	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)
Parent_HHIncome($ 1000 month)	4.643	4.808	5.481	5.586	7.144	6.976
	(0.057)	(0.061)	(0.063)	(0.064)	(0.082)	(0.081)
N	4825	4414	6310	6289	6029	5878

Table 3: Summary statistics of 17-23 year old full-time students: SIPP of 2001, 2004, and 2008 incl. parent information

Variable	Mean	(Std. Dev.)	Min.	Max.	N
ParentHealthIns	0.66	(0.474)	0	1	21014
EnrolledFullTime	1	(0)	1	1	21014
EnrolledPartTime	0	(0)	0	0	21014
WorkFullTime	0.056	(0.231)	0	1	21014
WorkPartTime	0.352	(0.477)	0	1	21014
PrivateHealthIns	0.78	(0.414)	0	1	21014
LostParentIns	0.01	(0.1)	0	1	21014
PhysMentalProblem	0.038	(0.19)	0	1	21014
Age	18.671	(1.686)	17	23	21014
AgeSquared	351.459	(65.444)	289	529	21014
Race_Black	0.137	(0.344)	0	1	21014
Race_Hispanic	0.084	(0.277)	0	1	21014
Female	0.497	(0.5)	0	1	21014
Married	0.007	(0.086)	0	1	21014
Income ($ 1000 month)	0.298	(0.58)	0	10	21014
PellGrant	0.104	(0.305)	0	1	21014
CollegeAssistance	0.024	(0.152)	0	1	21014
OtherFedGrant	0.014	(0.119)	0	1	21014
StudentLoan	0.134	(0.34)	0	1	21014
Scholarship	0.092	(0.289)	0	1	21014
StateScholarship	0.047	(0.212)	0	1	21014
Parent_PrivateHealthIns	0.801	(0.399)	0	1	21014
Parent_NoHighSchool	0.099	(0.299)	0	1	21014
Parent_College	0.321	(0.467)	0	1	21014
Parent_PhysMentalProblem	0.104	(0.305)	0	1	21014
Parent_Age	47.873	(6.653)	31	85	21014
Parent_Female	0.242	(0.428)	0	1	21014
Parent_HHIncome($ 1000 month)	6.259	(5.787)	0	59.728	21014
Year 2001, Wave 1	0.14	(0.347)	0	1	21014
Year 2001, Wave 4	0.133	(0.34)	0	1	21014
Year 2004, Wave 1	0.182	(0.386)	0	1	21014
Year 2004, Wave 4	0.196	(0.397)	0	1	21014
Year 2008, Wave 1	0.165	(0.371)	0	1	21014
Year 2008, Wave 4	0.184	(0.387)	0	1	21014

Table 4: Summary statistics of 17-23 year old part-time students: SIPP of 2001, 2004, and 2008 incl. parent information

Variable	Mean	(Std. Dev.)	Min.	Max.	N
ParentHealthIns	0.371	(0.483)	0	1	2017
EnrolledFullTime	0	(0)	0	0	2017
EnrolledPartTime	1	(0)	1	1	2017
WorkFullTime	0.297	(0.457)	0	1	2017
WorkPartTime	0.351	(0.477)	0	1	2017
PrivateHealthIns	0.63	(0.483)	0	1	2017
LostParentIns	0.031	(0.173)	0	1	2017
PhysMentalProblem	0.059	(0.236)	0	1	2017
Age	19.954	(1.809)	17	23	2017
AgeSquared	401.427	(72.622)	289	529	2017
Race_Black	0.145	(0.352)	0	1	2017
Race_Hispanic	0.163	(0.37)	0	1	2017
Female	0.494	(0.5)	0	1	2017
Married	0.021	(0.143)	0	1	2017
Income ($ 1000 month)	0.751	(0.861)	0	6.17	2017
PellGrant	0.098	(0.297)	0	1	2017
CollegeAssistance	0.008	(0.089)	0	1	2017
OtherFedGrant	0.015	(0.123)	0	1	2017
StudentLoan	0.067	(0.251)	0	1	2017
Scholarship	0.035	(0.184)	0	1	2017
StateScholarship	0.02	(0.139)	0	1	2017
Parent_PrivateHealthIns	0.728	(0.445)	0	1	2017
Parent_NoHighSchool	0.161	(0.367)	0	1	2017
Parent_College	0.196	(0.397)	0	1	2017
Parent_PhysMentalProblem	0.141	(0.348)	0	1	2017
Parent_Age	48.6	(6.688)	31	78	2017
Parent_Female	0.295	(0.456)	0	1	2017
Parent_HHIncome($ 1000 month)	5.661	(4.818)	0	48.229	2017
Year 2001, Wave 1	0.156	(0.363)	0	1	2017
Year 2001, Wave 4	0.112	(0.316)	0	1	2017
Year 2004, Wave 1	0.186	(0.389)	0	1	2017
Year 2004, Wave 4	0.201	(0.401)	0	1	2017
Year 2008, Wave 1	0.18	(0.385)	0	1	2017
Year 2008, Wave 4	0.165	(0.371)	0	1	2017

Table 5: Summary statistics of 17-23 year old non-students: SIPP of 2001, 2004, and 2008 incl. parent information

Variable	Mean	(Std. Dev.)	Min.	Max.	N
ParentHealthIns	0.223	(0.416)	0	1	10714
EnrolledFullTime	0	(0)	0	0	10714
EnrolledPartTime	0	(0)	0	0	10714
WorkFullTime	0.394	(0.489)	0	1	10714
WorkPartTime	0.204	(0.403)	0	1	10714
PrivateHealthIns	0.474	(0.499)	0	1	10714
LostParentIns	0.03	(0.17)	0	1	10714
PhysMentalProblem	0.086	(0.28)	0	1	10714
Age	20.32	(1.783)	17	23	10714
AgeSquared	416.075	(72.345)	289	529	10714
Race_Black	0.176	(0.38)	0	1	10714
Race_Hispanic	0.128	(0.334)	0	1	10714
Female	0.404	(0.491)	0	1	10714
Married	0.043	(0.204)	0	1	10714
Income($ 1000 month)	0.836	(1.013)	0	9.750	10714
PellGrant	0	(0)	0	0	10714
CollegeAssistance	0	(0)	0	0	10714
OtherFedGrant	0	(0)	0	0	10714
StudentLoan	0	(0)	0	0	10714
Scholarship	0	(0)	0	0	10714
StateScholarship	0	(0)	0	0	10714
Parent_PrivateHealthIns	0.645	(0.479)	0	1	10714
Parent_NoHighSchool	0.224	(0.417)	0	1	10714
Parent_College	0.137	(0.344)	0	1	10714
Parent_PhysMentalProblem	0.164	(0.37)	0	1	10714
Parent_Age	48.120	(6.893)	31	85	10714
Parent_Female	0.324	(0.468)	0	1	10714
Parent_HHIncome($ 1000 month)	5.085	(4.435)	0	46.281	10714
Year 2001, Wave 1	0.146	(0.354)	0	1	10714
Year 2001, Wave 4	0.129	(0.336)	0	1	10714
Year 2004, Wave 1	0.197	(0.398)	0	1	10714
Year 2004, Wave 4	0.165	(0.371)	0	1	10714
Year 2008, Wave 1	0.205	(0.403)	0	1	10714
Year 2008, Wave 4	0.158	(0.364)	0	1	10714

VARIABLES: marginal effects	Full-time	Part-time	No-student
ParentHealthIns	0.202***	-0.0117*	-0.190***
	(0.0260)	(0.00684)	(0.0267)
PrivateHealthIns	0.140***	0.00317	-0.143***
	(0.0192)	(0.00323)	(0.0200)
LostParentIns	0.0157	0.0139	-0.0296
	(0.0272)	(0.00983)	(0.0260)
PhysMentalProblem	-0.0926***	0.00228	0.0903***
	(0.0185)	(0.00357)	(0.0185)
Age	-1.407***	0.0537	1.353***
	(0.0962)	(0.0331)	(0.111)
AgeSquared	0.0321***	-0.00125	-0.0309***
	(0.00225)	(0.000771)	(0.00258)
Race_Black	-0.00398	-2.43e-05	0.00400
	(0.0129)	(0.00228)	(0.0128)
Race_Hispanic	-0.00875	0.00857	0.000184
	(0.0159)	(0.00553)	(0.0157)
Female	0.0596***	0.00360	-0.0632***
	(0.00921)	(0.00246)	(0.00915)
Married	-0.182***	-0.00668	0.189***
	(0.0302)	(0.00545)	(0.0296)
Income	-0.178***	0.00863*	0.170***
	(0.0128)	(0.00509)	(0.0145)
PellGrant	0.377***	0.00188	-0.379***
	(0.0696)	(0.00470)	(0.0732)
CollegeAssistance	0.389***	-0.00968	-0.379***
	(0.0712)	(0.00794)	(0.0732)
OtherFedGrant	0.369***	0.0105	-0.379***
	(0.0695)	(0.0117)	(0.0732)
StudentLoan	0.389***	-0.00982	-0.379***
	(0.0710)	(0.00618)	(0.0732)
Scholarship	0.389***	-0.00968	-0.379***
	(0.0710)	(0.00639)	(0.0732)
StateScholarship	0.390***	-0.0110	-0.379***
	(0.0713)	(0.00727)	(0.0732)
Parent_PrivateHealthIns	-0.0690***	0.00579	0.0632***
	(0.0130)	(0.00380)	(0.0130)
Parent_NoHighSchool	-0.101***	-0.00261	0.103***
	(0.0143)	(0.00263)	(0.0144)
Parent_College	0.145***	-0.00633	-0.139***
	(0.0178)	(0.00401)	(0.0186)
Parent_PhysMentalProblem	-0.0240*	0.00258	0.0214*
	(0.0132)	(0.00272)	(0.0130)
Parent_Age	0.00302***	0.000112	-0.00313***
	(0.000732)	(0.000132)	(0.000732)
Parent_Female	-0.0224**	0.00279	0.0196*
	(0.0107)	(0.00237)	(0.0107)
Parent_HHIncome	0.00937***	-0.000159	-0.00921***
	(0.00127)	(0.000204)	(0.00131)
Observations	33,745	33,745	33,745

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Dependent variable is occupational choice: 1. full time student, 2. part time student and 3. no student. We report marginal effects for an 18-year old, unmarried white female with median income, no mental health problems, no parental health insurance, and no private health insurance. We report marginal effects for an 18-year old, unmarried white female with median income, no health problems, no parental health insurance, and no private health insurance whose parent is a 50 year old male, with median income, no health problems, private insurance and a high school degree. Data is from SIPP 2001, 2004, and 2008 including parental information. Observational units are individuals age 17-23. Covariates controlling for time and geographical location are omitted due to space constraints.

VARIABLES: marginal effects	All individuals Enrolled full-time (0/1)	Students only Enrolled full-time (0/1)
ParentHealthIns	0.205***	0.0384*
	(0.0158)	(0.0200)
PrivateHealthIns	0.119***	0.00607
	(0.0121)	(0.00593)
LostParentIns	0.000292	-0.0200
	(0.0245)	(0.0165)
PhysMentalProblem	-0.0852***	-0.0150
	(0.0158)	(0.0111)
Age	-1.255***	-0.232**
	(0.0423)	(0.108)
AgeSquared	0.0286***	0.00525**
	(0.00106)	(0.00246)
Race_Black	-0.00391	-0.000215
	(0.0117)	(0.00542)
Race_Hispanic	-0.0168	-0.0184*
	(0.0139)	(0.0106)
Female	0.0428***	0.000440
	(0.00746)	(0.00330)
Married	-0.143***	-0.00622
	(0.0250)	(0.0146)
Income	-0.150***	-0.0352**
	(0.00693)	(0.0162)
PellGrant	0.358***	0.0213*
	(0.0384)	(0.0112)
CollegeAssistance	0.300***	0.0359*
	(0.0541)	(0.0198)
OtherFedGrant	0.290***	0.00405
	(0.0502)	(0.0139)
StudentLoan	0.384***	0.0382*
	(0.0434)	(0.0198)
Scholarship	0.369***	0.0376*
	(0.0415)	(0.0196)
StateScholarship	0.376***	0.0385*
	(0.0444)	(0.0204)
Parent_PrivateHealthIns	-0.0688***	-0.0189*
	(0.0111)	(0.0102)
Parent_NoHighSchool	-0.0824***	-0.00479
	(0.0116)	(0.00595)
Parent_College	0.134***	0.0233**
	(0.0114)	(0.0118)
Parent_PhysMentalProblem	-0.0232**	-0.0114
	(0.0118)	(0.00790)
Parent_Age	0.00238***	8.26e-05
	(0.000618)	(0.000269)
Parent_Female	-0.0242***	-0.0102
	(0.00935)	(0.00637)
Parent_HHIncome	0.00782***	0.00108*
	(0.000974)	(0.000618)
Observations	33,745	22,975

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: The dependent variable is Enrolled full-time a 0/1 dummy variable taking on value one if a student is enrolled full time. We report marginal effects for an 18-year old, unmarried white female with median income, no mental health problems, no parental health insurance, and no private health insurance We report marginal effects for an 18-year old, unmarried white female with median income, no health problems, no parental health insurance, and no private health insurance whose parent is a 50 year old male, with median income, no health problems, private insurance and a high school degree. Data is from SIPP 2001, 2004, and 2008. Observational units are individuals age 17-23 in the first column, and students only in the second column. Covariates controlling for time and geographical location are omitted due to space constraints.

VARIABLES: marg. eff. at average X	All individuals Enrolled full-time (0/1)	Students only Enrolled full-time (0/1)
ParentHealthIns	0.192***	0.0570***
	(0.00910)	(0.00511)
PrivateHealthIns	0.110***	0.00591
	(0.0105)	(0.00516)
LostParentIns	0.000254	-0.0183
	(0.0213)	(0.0131)
PhysMentalProblem	-0.0772***	-0.0136*
	(0.0149)	(0.00827)
Age	-1.091***	-0.211***
	(0.0362)	(0.0178)
AgeSquared	0.0249***	0.00480***
	(0.000912)	(0.000451)
Race_Black	-0.00340	-0.000197
	(0.0102)	(0.00494)
Race_Hispanic	-0.0147	-0.0165***
	(0.0122)	(0.00620)
Female	0.0371***	0.000400
	(0.00644)	(0.00299)
Married	-0.134***	-0.00568
	(0.0253)	(0.0131)
Income	-0.131***	-0.0322***
	(0.00614)	(0.00224)
PellGrant	0.273***	0.0200***
	(0.00688)	(0.00399)
CollegeAssistance	0.222***	0.0330***
	(0.0286)	(0.00706)
OtherFedGrant	0.215***	0.00370
	(0.0268)	(0.0125)
StudentLoan	0.298***	0.0384***
	(0.00626)	(0.00307)
Scholarship	0.277***	0.0364***
	(0.00844)	(0.00372)
StateScholarship	0.271***	0.0361***
	(0.00984)	(0.00442)
Parent_PrivateHealthIns	-0.0592***	-0.0183***
	(0.00916)	(0.00407)
Parent_NoHighSchool	-0.0741***	-0.00435
	(0.0108)	(0.00508)
Parent_College	0.114***	0.0239***
	(0.00825)	(0.00348)
Parent_PhysMentalProblem	-0.0203*	-0.0103*
	(0.0104)	(0.00543)
Parent_Age	0.00207***	7.54e-05
	(0.000537)	(0.000244)
Parent_Female	-0.0212***	-0.00900**
	(0.00821)	(0.00399)
Parent_HHIncome	0.00681***	0.000985***
	(0.000846)	(0.000351)
Observations	33,745	22,975

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Dependent variable is Enrolled full-time a 0/1 dummy variable taking on value one if student is enrolled full time. We report marginal effects evaluated at the average. Data is from SIPP 2001, 2004, and 2008. Observational units are individuals age 17-23 in the first column, and students only in the second column. Covariates controlling for time and geographical location are omitted due to space constraints.

VARIABLES Panel:	Fixed Effects: All Enrolled full-time	Random Effects: All Enrolled full-time	Fixed Effects: Students Enrolled full-time	Random Effects: Students Enrolled full-time
ParentHealthIns	0.107***	0.157***	0.0375***	0.0747***
	(0.0133)	(0.00685)	(0.0133)	(0.00670)
PrivateHealthIns	0.0522***	0.0937***	-0.00709	0.00463
	(0.0142)	(0.00728)	(0.0202)	(0.00925)
LostParentIns	-0.0166	-0.0166	-0.0545	-0.0531**
	(0.0286)	(0.0171)	(0.0434)	(0.0241)
PhysMentalProblem	-0.0628***	-0.0745***	-0.0204	-0.0196*
	(0.0222)	(0.0102)	(0.0251)	(0.0114)
Age	-0.628***	-0.791***	-0.0711	-0.145***
	(0.0460)	(0.0249)	(0.0474)	(0.0282)
AgeSquared	0.0141***	0.0179***	0.00116	0.00286***
	(0.00117)	(0.000630)	(0.00125)	(0.000733)
Race_Black		-0.000711		0.00122
		(0.00708)		(0.00628)
Race_Hispanic		-0.0116		-0.0292***
		(0.00836)		(0.00853)
Female		0.0324***		0.00157
		(0.00443)		(0.00368)
Married	-0.0817*	-0.109***	0.00257	-0.0282
	(0.0474)	(0.0146)	(0.0622)	(0.0284)
Income	-0.0730***	-0.0994***	-0.0345***	-0.0649***
	(0.00577)	(0.00360)	(0.00724)	(0.00468)
PellGrant	0.196***	0.251***	0.00245	0.0320***
	(0.0155)	(0.00821)	(0.0124)	(0.00666)
CollegeAssistance	0.0226	0.0486***	0.0159	0.0291***
	(0.0262)	(0.0154)	(0.0175)	(0.00941)
OtherFedGrant	0.0369	0.113***	-0.0183	-0.00576
	(0.0307)	(0.0220)	(0.0224)	(0.0160)
StudentLoan	0.170***	0.240***	0.0280***	0.0610***
	(0.0130)	(0.00693)	(0.00974)	(0.00534)
Scholarship	0.104***	0.154***	0.0156	0.0393***
	(0.0144)	(0.00778)	(0.00979)	(0.00541)
StateScholarship	0.0953***	0.169***	0.0121	0.0462***
	(0.0185)	(0.0108)	(0.0118)	(0.00710)
Parent_PrivateHealthIns	0.0177	-0.0488***	0.0302	-0.0337***
	(0.0167)	(0.00699)	(0.0206)	(0.00818)
Parent_NoHighSchool	-0.0323	-0.0657***	0.0163	-0.00849
	(0.0211)	(0.00723)	(0.0266)	(0.00760)
Parent_College	0.0599*	0.0822***	0.0610**	0.0289***
	(0.0311)	(0.00549)	(0.0254)	(0.00416)
Parent_PhysMentalProblem	0.0188	-0.0142**	0.0238	-0.00842
	(0.0163)	(0.00715)	(0.0173)	(0.00700)
Parent_Age	0.000813	0.00168***	0.00102	1.29e-06
	(0.00189)	(0.000366)	(0.00170)	(0.000312)
Parent_Female	-0.0168	-0.0204***	-0.0185	-0.0103**
	(0.0289)	(0.00558)	(0.0318)	(0.00502)
Parent_HHIncome	0.000959	0.00363***	-0.000391	0.000872***
	(0.00106)	(0.000443)	(0.000802)	(0.000318)
Constant	7.279***	8.944***	1.720***	2.620***
	(0.455)	(0.246)	(0.453)	(0.270)
Observations	33,745	33,745	23,031	23,031
Number of id	22,907	22,907	16,749	16,749

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Fixed and random effects linear probability model. Dependent variable is Enrolled full-time a 0/1 dummy variable taking on value one if student is enrolled full time. Data is from SIPP 2001, 2004, and 2008. Observational units are individuals age 17-23. Covariates controlling for geographical location are omitted due to space constraints.

	Y = enrolled full-time		
VARIABLES marg.eff. at average on:	P[Y observed]	E[Y| Y observed]	E[Y]
ParentHealthIns	0.00262***	0.0735***	0.0757***
	(0.000355)	(0.00686)	(0.00687)
PrivateHealthIns	0.00248***	0.00114	0.00334
	(0.000331)	(0.00942)	(0.00938)
LostParentIns	0.000468**	-0.0525**	-0.0520**
	(0.000236)	(0.0254)	(0.0254)
PhysMentalProblem	-0.00126***	-0.0139	-0.0150
	(0.000358)	(0.0118)	(0.0117)
Age	-0.0158***	-0.122***	-0.136***
	(0.00187)	(0.0288)	(0.0288)
AgeSquared	0.000362***	0.00239***	0.00271***
	(4.32e-05)	(0.000747)	(0.000748)
Race_Black	-2.73e-05	0.000550	0.000525
	(0.000153)	(0.00642)	(0.00641)
Race_Hispanic	0.000154	-0.0325***	-0.0323***
	(0.000173)	(0.00898)	(0.00895)
Female	0.000727***	-0.000871	-0.000226
	(0.000125)	(0.00370)	(0.00369)
Married	-0.00394***	-0.0171	-0.0205
	(0.00107)	(0.0281)	(0.0279)
Income	-0.00162***	-0.0635***	-0.0649***
	(0.000133)	(0.00474)	(0.00473)
PellGrant	0.00993***	0.0190***	0.0278***
	(0.000871)	(0.00677)	(0.00684)
CollegeAssistance	0.00228***	0.0306***	0.0326***
	(0.000269)	(0.00923)	(0.00923)
OtherFedGrant	0.00205***	-0.00904	-0.00723
	(0.000241)	(0.0164)	(0.0164)
StudentLoan	0.0189***	0.0523***	0.0689***
	(0.00113)	(0.00527)	(0.00538)
Scholarship	0.00759***	0.0347***	0.0414***
	(0.000644)	(0.00538)	(0.00543)
StateScholarship	0.00365***	0.0429***	0.0462***
	(0.000379)	(0.00726)	(0.00728)
Parent_PrivateHealthIns	-0.000589***	-0.0368***	-0.0373***
	(0.000138)	(0.00844)	(0.00842)
Parent_NoHighSchool	-0.00158***	-0.00436	-0.00575
	(0.000315)	(0.00797)	(0.00794)
Parent_College	0.00139***	0.0243***	0.0255***
	(0.000180)	(0.00423)	(0.00424)
Parent_PhysMentalProblem	-0.000226	-0.00992	-0.0101
	(0.000167)	(0.00720)	(0.00719)
Parent_Age	3.71e-05***	-9.75e-05	-6.45e-05
	(9.23e-06)	(0.000318)	(0.000317)
Parent_Female	-0.000210	-0.00931*	-0.00948*
	(0.000131)	(0.00511)	(0.00510)
Parent_HHIncome	0.000102***	0.000731**	0.000820**
	(1.69e-05)	(0.000320)	(0.000320)
Observations	33,745	33,745	33,745

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Heckman selection model estimated by Maximum Likelihood. Dependent variable is Enrolled full-time a 0/1 dummy variable taking on value one if student is enrolled full time. The selection is on whether an individual is a student. We report three sets of marginal effects that are all evaluated at the average of all dependent variables: (i) The marginal effects for the probability of Enrolled Full-Time being observed: Pr(EnrolledFull observed) (ii) The marginal effects for the expected value of Enrolled Full-time conditional on being observed: E(EnrolledFull | EnrolledFull observed) (iii) The marginal effects for the expected value of Enrolled Full-Time, E(EnrolledFull). Data is from SIPP 2001, 2004, and 2008. Observational units are individuals age 17-23. Covariates controlling for time and geographical location are omitted due to space constraints.

Policy	**Group 1: 17-24**		**Group 2: 24-26**	
Pre-ACA	Reverse subsidy for high income students Incentive to postpone graduation $\Uparrow$ full-time $\downarrow$ part-time $\downarrow$ work-full time	Parent health insurance stops	High risk of losing insurance $\downarrow$ full-time $\downarrow$ part-time $\Uparrow$ work-full	
Post-ACA	Incentive to enroll as part-time student Easier for low income students to study part-time $\downarrow$ full-time $\Uparrow$ part-time $\Uparrow$ work-full time		Low risk of losing insurance Incentive to postpone graduation $\downarrow$ full-time $\Uparrow$ part-time $\Downarrow$ work-full	Parent health insurance stops

Table 11: Incentive structure under pre- and post ACA reform.

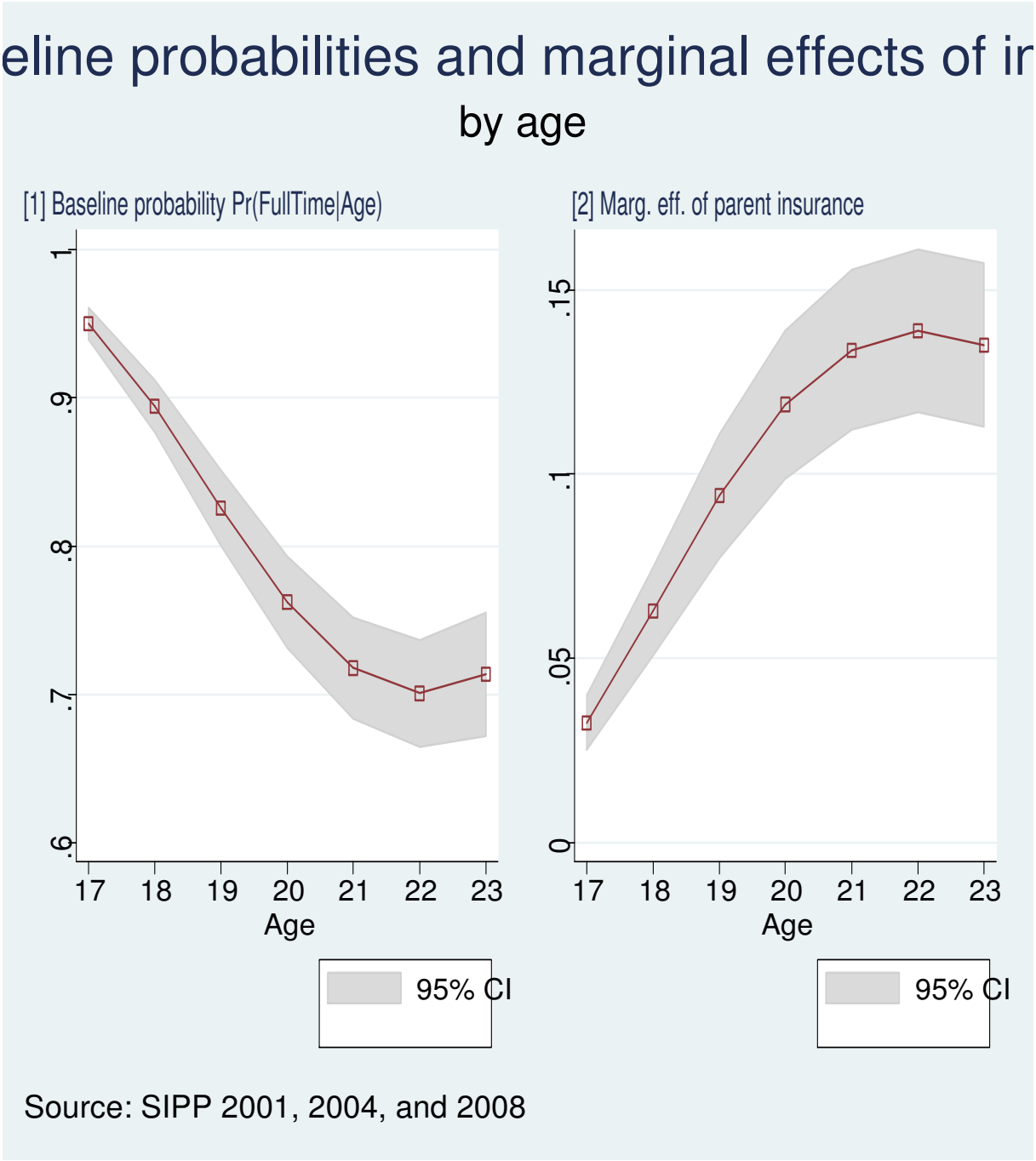

Figure 2: **Probit model.** Baseline probability of choosing the status of full-time student and marginal effects of the availability of parental health insurance on choosing to be a full-time student by age. We report marginal effects for an 18-year old, unmarried white female with median income, no health problems, no parental health insurance, and no private health insurance whose parent is a 50 year old male, with median income, no health problems, private insurance and a high school degree.

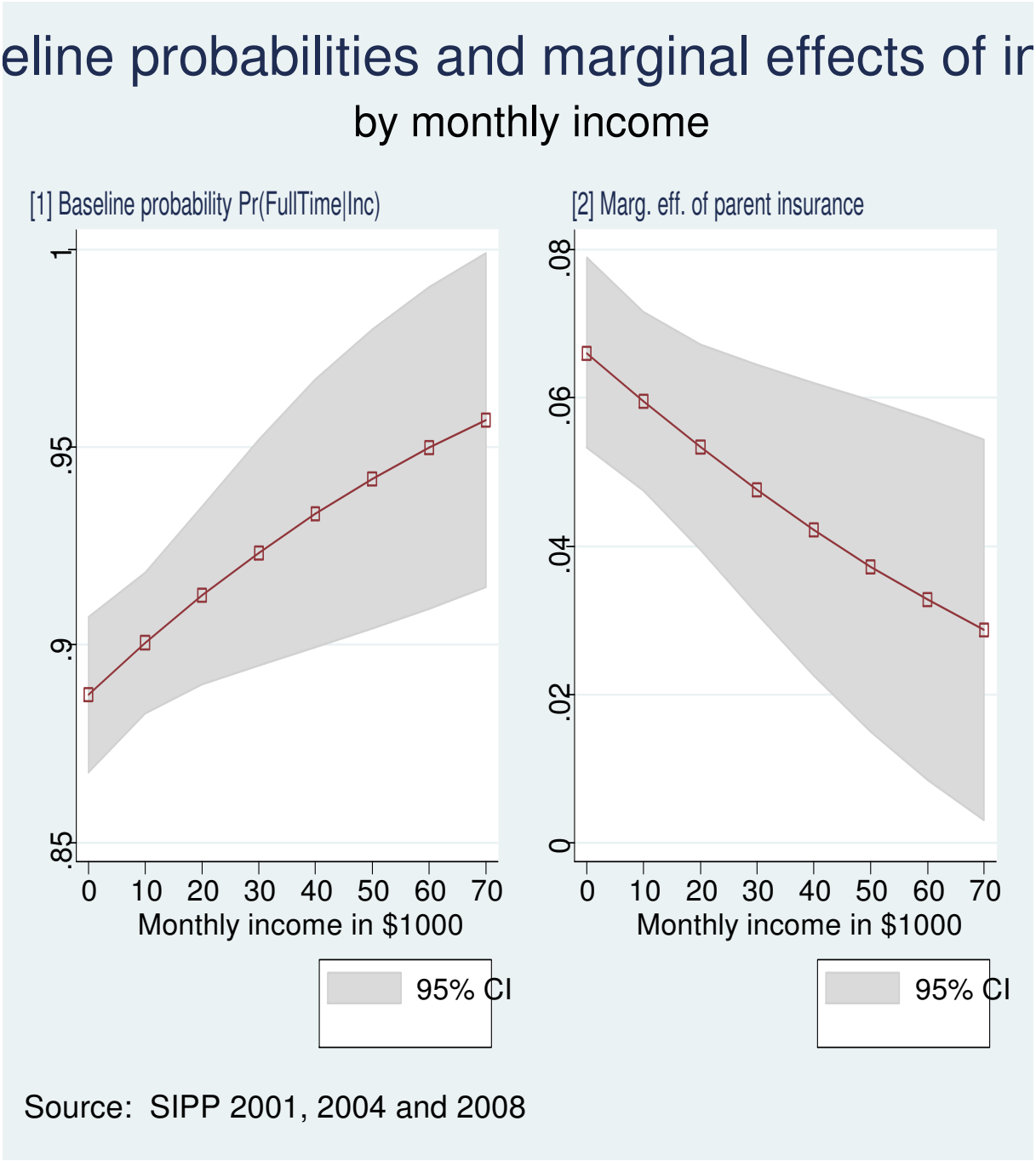

Figure 3: **Probit model.** Baseline probability of choosing the status of full-time student and marginal effects of the availability of parental health insurance on choosing to be a full-time student per monthly income in 1,000 dollar units. We report marginal effects for an 18-year old, unmarried white female with median income, no health problems, no parental health insurance, and no private health insurance whose parent is a 50 year old male, with median income, no health problems, private insurance and a high school degree.