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Three essays on health economics

Mojisola O.A. Tayo

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ABSTRACT

THREE ESSAYS ON HEALTH ECONOMICS

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This dissertation consists of three essays examining topics in health economics. The first essay examines the impact of education on 10-year mortality rates of minorities in the United States. I use the states' compulsory education laws to instrument the level of education in my cohort study of the effect of education on the mortality rates of minority groups (Blacks, Asians and Hispanics) born in the early twentieth century. I find that an increase in years of education significantly decreases the mortality rates for the White and Black populations, but not for the Asian and Hispanic populations.

The second essay explores the effect of education on adult self-reported health (SRH), health behaviors (smoking, seatbelt use, and exercise), and health outcomes (body mass index (BMI), hypertension, and heart attack) by race and ethnicity using Medical Expenditure Panel Survey (MEPS) data from 2001-2011. I find racial and ethnic disparities in the education gradient on SRH that remain significant after controlling for income and other economic factors. I explore the pathway through which education influences health using three different econometric methods to estimate a causal effect. I find that education directly affects health behaviors and that health behaviors directly affect health outcomes including SRH, leading to an indirect impact of education

on SRH.

My third essay is written in collaboration with my adviser, Dr. Virginia Wilcox-Gök. We use the National Comorbidity Survey Baseline (NCS-1) dataset from 1990-1992 and O*NET (Occupational Information Network) to explore whether individuals diagnosed with depression before age 22 self-select as adults into occupations that accommodate their depressive disorders. Depressive disorder is a health problem that can start very early on in life, so it often limits educational attainment and adult earning. It is also a disorder that can be helped if diagnosed early. Because individuals with chronic depression may need more flexibility and less stress in the workplace to cope with their disorder, their adult occupational choice may depend on how accommodating the occupation's characteristics are to this disorder. We find that women with early-onset depressive disorder are more likely to be employed full time than men, while both men and women are likely to choose self-employment. Men with more frequent depressive episodes are less likely than women to choose occupations requiring higher levels of education, experience, and training. In contrast, women with early onset depressive disorder are more likely than men to take jobs in the service sector.

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THREE ESSAYS ON HEALTH ECONOMICS

BY

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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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Dissertation Director:
Virginia Wilcox-Gök

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DEDICATION

To the only wise God my Saviour, be glory and majesty, dominion and power, both now and ever.

Amen. - Jude 1:25

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CHAPTER 1

INTRODUCTION

This dissertation consists of three essays examining topics in health economics. The first looks at the effect of education on health as measured by mortality rate. The second analyzes the direct and indirect effect of education on health behaviors and health outcomes. The last evaluates occupational decisions of individuals who have suffered early-onset depression.

In the first essay, I use the states' compulsory education laws as an instrumental variable for level of education and mortality rate (as the measure for health). I analyze a cohort study using individuals 14 years old and above born in the early twentieth century (born 1901-1925). The analysis is an aggregate study of individuals of the same age and gender, living in the same states. I investigate the effect of education on the health of minority groups (Blacks, Asians and Hispanics) and find that an increase in years of education significantly decreases the 10-year mortality rate for the White and Black populations, but not for the Asian and Hispanic populations. My subsequent analysis using a younger cohort (born 1921-1945) yields the same result and also indicates that compulsory states' education requirements are a weak instrument for the younger cohort.

Studies estimating the education-health gradient have largely focused on the total effect while controlling for income, variation across states, region, and years. Few studies have decomposed the total education-health gradient into the direct and indirect components to determine the paths by which education affects health. In the second essay, my research contributes to the literature by estimating these component effects of education on health and investigating how these vary by race and ethnicity.

Unbiased estimation of the education-health gradient dictates that I use econometric methods to control for the potential endogeneity between education and income. Often, instrumental variables (IVs) such as proximity to school, parents' education, and states' compulsory school attendance laws have been used to estimate the causal effect of education on health. The success of this approach depends upon the quality of the IVs. In this research I use an alternative nonparametric and semi-parametric estimation method to infer causal effects. Using United States data from the Medical Expenditure Panel Survey (MEPS), I estimate the average treatment effect of education on self-reported health (SRH) using a nonparametric bounds analysis of treatment response. The MEPS is a nationally representative survey of the civilian non-institutionalized population. My measures for health behavior are smoking, exercise, and auto safety (seatbelt use). Health outcomes considered are diagnoses of obesity ($BMI \geq 30$), diabetes, heart attack, and hypertension. Individuals are grouped by race and ethnicity, as well as by gender, age group, and income level.

Findings for the total effect indicate that education improves self-reported health (SRH). However, I found that education decreases the probability of smoking for most racial and ethnic age groups, and a decrease in smoking improves SRH. Decomposing the effect of education on health into the effects of health behaviors on SRH and the effect of education on health behaviors sheds light on how education affects health. My results demonstrate that education has a direct impact on health behavior and an indirect effect on SRH, while health behavior has a direct effect on SRH.

Lastly, in my third essay in collaboration with my adviser, Dr. Virginia Wilcox-Gök, we examine the impact of early-onset depression on individuals' occupational characteristic. Depressive disorder is a health problem that can start very early on in life, so it has a tendency to limit educational attainment and limit earning capacity. Depressed individuals may need flexibility and less stress in their job to cope with the disorder, so their occupational choice may depend on the characteristics of the occupation. Prior studies of early-onset depression concentrated on this mood disorder's impact on educational attainment, wages, and labor force participation. This research contributes to the literature by exploring whether individuals diagnosed with depression as youth

self-select into accommodating occupations as adults.

Using the National Comorbidity Survey Baseline (NCS-1) dataset from 1990-1992, we conduct gender-specific multinomial logit regressions to estimate the marginal effect of having early-onset depression on occupation choices. We use four different classifications of occupation as follows: Six major groups of Standard Occupational Classification, five job zones occupation classifications from O*NET-JZ, classification as full-time or part-time employment, and classification as self-employment or employee. The results indicate that women with early-onset depression are more likely than men to be employed full time. The probability of being self-employed is positive and significant for both men and women. Regarding the different job zones, which are based on the level of education and level of experience needed for the occupation, men with early-onset depression are more likely than women to choose jobs in occupations requiring higher levels of education than jobs requiring less education, while women with early-onset depression are more likely than men to work in the service sector.

CHAPTER 2

EFFECT OF EDUCATION ON THE MORTALITY RATE OF MINORITIES IN THE U.S.

2.1 Introduction

There is an established correlation between an individual's education level and his or her health. Grossman and Kaestner (1997) and Grossman (2000) reviewed the research documenting this relationship. Researchers have found that the nature of the causality relationship between education and health depends on the hypothesis being tested. Cutler and Lleras-Muney (2006) offer three possible explanations: First, they suggest that healthier individuals invest more in education because they have a longer lifetime horizon to enjoy the returns on their academic investment. Second, they indicate that more-educated individuals have more health knowledge and higher income to invest in health behavior. Last, they argue there may be other factors that affect both the education and the health of an individual. While these causal relationships may occur simultaneously, for policy-making purposes it is important to establish the nature of causality between education and health. Lleras-Muney (2005) studied the effect of education on adult mortality rates in the United States by looking at the effect of compulsory education and child labor laws on the mortality rates of white Americans (Hispanic and non-Hispanic). She found that education has a significant causal effect on the health of the cohort (year of birth) she studied. In this study, I examine the effect of education on the mortality rate of minorities (African Americans, Asians, and Hispanics) in the

United States. I use data drawn from successive U.S. censuses while controlling for differences in socioeconomic status (SES), following the method of Lleras-Muney (2005).¹

Among the minority groups, I found that for older cohort of individuals born between 1901-1921, education significantly reduces the 10-year mortality rates for only African Americans. There is no significant effect was found for Asian and Hispanic population. The result is consistent even when a larger data set is used.

The results of this research are important to education and health policy makers. It may assist them in efficiently apportioning funds for education and health, particularly when disparities in SES lead to health disparities.

2.2 Literature Review

One argument explaining the correlation between education and health suggests that greater levels of education lead individuals to amass knowledge about health and how to produce and allocate health stock efficiently. To investigate the effect of education on health in the United States, Lleras-Muney (2005) used states' compulsory education laws and states' child labor laws to create an instrumental variable for education and found that higher levels of education reduce the mortality rate. Elo and Preston (1996) and Kitagawa and Hauser (1973) also found that greater educational attainment reduces the mortality rate. Kitagawa and Hauser's hypothesis was that low SES individuals have a high mortality rate. They found that many African Americans have low SES, and communities with a higher percentage of African Americans have higher mortality rates than communities with a lower percentage of African Americans. Berger and Leigh (1989) used four different measurements of health stock including systolic blood pressure, diastolic blood pressure, self-reported disability, and functional limitations. They found evidence of a causal effect of

¹Her classification of White included Hispanics.

education on health. However, they also found a reverse causality between education and disability, arguing that people with poor health invest in fewer years of schooling. Ding et al. (2009) used genetic markers (linked to ADHD, depression, and obesity) to establish a causal effect of health on education in adolescence and found evidence of the effect among women.

Groot and Maassen Van Den Brink (2007), using data from the Netherlands, established that causality runs from education to self-reported health (SRH). They also checked whether unobserved heterogeneity like genetic factors has a causal effect on individuals' education and health, but failed to find strong evidence of such relationships. Silles (2009) used compulsory years of schooling as an instrumental variable for education and found that education has a positive causal effect on health (SRH) in the United Kingdom. However, Clark and Royer (2010), using the compulsory education law in Britain as Silles (2009) did, found no evidence of a causal relationship between education and mortality rate reduction.

Other studies examine the effect of other factors on both the education and health of an individual. Maccini and Yang (2006) studied the effect of weather (rainfall) in early childhood on the long-term health of Indonesians. Their hypothesis was that years of plentiful rainfall result in higher crop yields, which in turn improve the well-being of families and their ability to send their children to school. They also found that children who attended school were healthier as adults. In contrast, years of drought result in lower family income and reduced school enrollment of children. Droughts also increased malnutrition and diseases among children. Glewwe (1999), who investigated the effect of mothers' level of education on children's health in Morocco, found that highly educated mothers had better health and that a mother's investment in health when young and when pregnant has a large impact on her children's health. The children's ability to acquire a higher level of education is also influenced by their good health as infants.

The three possible explanations of the causal relationship between education and health discussed in Section 2.1 are not mutually exclusive and research findings vary across studies. The studies reviewed here demonstrate evidence of causality of education on health. In the research

reported in this paper, I examine whether educational attainment, instrumented by states' compulsory education and child labor laws, has a causal effect on the health of minorities in the United States.

2.3 Theoretical Model

In Grossman's (1972, 2000) seminal model of the demand for health, a consumer maximizes utility by choosing consumption of non-health commodities and services (produced using a vector of goods and time inputs) and consumption of health services. Net investment in health stock is gross investment minus health depreciation, where gross investment depends on medical service inputs and time inputs. The parameter (α) measures the efficiency of input in producing the health stock. An increase in education raises the efficiency of health production. Wagstaff (1986) and Ehrlich and Chuma (1990) extend Grossman's (1972) model to a continuous time framework. In the Ehrlich and Chuma (1990) model, which I use as the basis for my empirical analyses, the representative individual maximizes life cycle utility subject to the life cycle budget constraint. Several equations from Ehrlich and Chuma (1990) are reproduced below with explanations of their meaning in the context of my research. Definitions of the variables are in Table 2.1.

A representative consumer maximizes lifetime utility

$$LU \equiv \int_0^T e^{-\rho t} U[Z(t), \phi(H(t))] dt \quad (2.1)$$

subject to the equations of motion in state variables health stock ($H(t)$) and non-health assets stock ($A(t)$)

$$\dot{H}(t) = I(t)^\alpha - \delta(t)H(t), 0 < \alpha < 1 \quad (2.2)$$

$$\dot{A}(t) = rA(t) + w(t)\phi(H(t)) - \pi(t)I(t)^\alpha - \psi(t)Z(t), \quad w(t) = w(E(t)) \quad (2.3)$$

$\dot{H}(t)$ is the rate of change in health stock over time. It increases as investment in health services increases and decreases as health stock depreciates over time. $\dot{A}(t)$ is the rate of change in the level of the individual's wealth. It increases with returns from investment and the individual's income in the labor market. $\dot{A}(t)$ decreases with the consumer's expenditures on non-health goods and services, as well as on health services. In equation (2.3), the stock of assets grows at the interest rate and healthy time is valued at the wage rate w . The unit cost of producing the control variables $I(t)$ and $Z(t)$ are $\pi(t)$ and $\psi(t)$, respectively.

Table 2.1: Definition of Theoretical Model Variables

Variable	Definition
T	Length of life
H(t), H _{min}	Stock of health capital at time t and at death respectively
$\delta(t)$	Rate of Depreciation of H(t)
h(t)	Fraction of healthy time in t; $h = \phi(H(t))$
Z(t)	Flow of consumption activities
X(t), c(t)	Market goods and Consumption time inputs in the production of Z(t)
I(t)	Flow of gross investment in H(t)
M(t), m(t)	Medical services and time input in production of I(t)
l(t), s(t)	Labor and sick time respectively
E(t)	Stock of education capital
w(t)	Market wage rate; $w(t) = w(E(t))$
P(t), K(t)	Unit prices of M(t) and X(t) respectively
$\pi(t)$, $\psi(t)$	Unit prices (shadow) of I(t) and Z(t) respectively
A(t)	Stock of non human assets
L(t)	Discounted value of future labor income
r, ρ	Market interest rate and time preference rate
β	Effort saving technology change
1/ α	Degree of homogeneity of the production function of I(t)
U(t)	Instantaneous utility of "quality of life"
g(t)	Unit value of health capital

source: Ehrlich and Chuma (1990)

The time inputs in the labor market, in health production $I(t)$, in non-health production $Z(t)$, and in illness are $l(t)$, $m(t)$, $c(t)$, and $s(t)$, respectively. The time constraint is:

$$l(t) + s(t) + m(t) + c(t) = 1, \quad \text{where} \quad 1 - s(t) = h(t) \quad (2.4)$$

It follows that $h(t)$, the fraction of healthy time, is given by

$$h(t) = l(t) + m(t) + c(t)$$

Health investment is a function of medical services consumed, the time input and level of education $I(t) = I[M(t), m(t); E(t)]$ and other consumption activities depend on market goods consumed, time input, and level of education $Z(t) = Z[X(t), c(t); E(t)]$. This lifetime utility maximization can be simplified and solved using the Hamiltonian function

$$\begin{aligned} V(t) \equiv & e^{-\rho t} U(Z(t), \phi(H(t))) + \lambda_H(t) [I(t)^\alpha - \delta(t)H(t)] \\ & + \lambda_A(t) [rA(t) + w(t)\phi(H(t)) - \pi(t)I(t)^\alpha - \psi(t)Z(t)] \end{aligned} \quad (2.5)$$

The costate variables $\lambda_H(t)$ and $\lambda_A(t)$ are the marginal utility of health and the marginal utility of wealth, respectively. Solving the optimality and transversality conditions yields:

$$V(T) \equiv e^{-\rho T} U(Z(T), \phi(H(T))) + \lambda_H(T) \dot{H}(T) + \lambda_A(T) \dot{A}(T) = 0 \quad (2.6)$$

This model describes how a representative consumer chooses the amount of consumption activities ($Z(t)$) and investment in health services ($I(t)$) to maximize lifetime utility. As in Grossman (1972), the parameter α measures the efficiency of the production of health. Ehrlich and Chuma (1990) by assuming that all market prices (w , r , π , and ψ) are constant over time, found that the optimal health investment is achieved when $\alpha = 2$, indicating that the health production function

is linear in education. Comparative statistics show that an increase in educational attainment will lead to an increase in health, other things being equal (Ehrlich and Chuma, 1990).

The positive impact of education on health as derived in the above model has been the basis for many empirical studies, including the Lleras-Muney (2005) study which I extend in this research. In particular, I hypothesize that education has a positive effect on health and test the null hypothesis that the gradient is the same across race and ethnicity. I also hypothesize that higher quality of education increases the education-health gradient.

2.4 Empirical Model

I use the empirical model of Lleras-Muney (2005) to analyze the effect of education on health. The health production function is specified as

$$H_i = X_i\Phi + E_i\Omega + \Theta_i \quad (2.7)$$

Where H_i is the health stock for individual i , E_i is his education level, and X_i is a vector of individual characteristics that affect his health. Since H_i (individual stock of health) is not observable, the death rate is used as a measure of health stock. This is represented by

$$\bar{D}_{gtcs} = b + \bar{X}_{gcs}\beta + \bar{E}_{gcs}\Pi + W_{cs}\delta + \gamma_c + \alpha_s + \bar{\epsilon}_{gcs} \quad (2.8)$$

where \bar{D}_{gtcs} is the death rate for group g at time t , \bar{X}_{gcs} is the characteristic of the group, \bar{E}_{gcs} is the average education (years of schooling completed) of the group, W_{cs} are characteristics of the cohort's state of birth at age 14 years, γ_c is a set of cohort dummy variables, α_s is a set of state of birth dummy variables, b is the intercept, and $\bar{\epsilon}_{gcs}$ is the error term. To handle the possibility of

heteroskedasticity, equation (2.8) is estimated with weighted least squares (WLS) with the number of individuals in the groups as weight. The null hypothesis to test is whether $\Pi = 0$.

If variables that affect both education and mortality rate are omitted from the controls, education may be endogenous because of omitted variables. These factors might include the introduction of more sanitary water and sewage systems, stronger enforcement of children's immunization guidelines by states, and dissemination of new medical techniques over the years in different states that affect both educational attainment and mortality rates. Because the least squares method may be inconsistent due to omitted factors that influence both schooling attainment and mortality rate, I estimate an instrumental variables model given by equations (2.9) and (2.10):

$$\bar{E}_{gcs} = a + \bar{X}_{gcs}\omega + CL_{cs}\eta + W_{cs}\theta + \kappa_c + \sigma_s + \bar{v}_{gcs} \quad (2.9)$$

$$\bar{D}_{gtcs} = d + \bar{X}_{gcs}\mu + \hat{E}_{gcs}\rho + W_{cs}\tau + \lambda_c + \xi_s + \bar{u}_{gcs} \quad (2.10)$$

where CL_{cs} is a set of dummy variables describing the range of compulsory years of schooling indicated by the states' compulsory education laws, \hat{E}_{gcs} is the predicted value of \bar{E}_{gcs} , κ_c and λ_c are sets of cohort dummy variables, σ_s and ξ_s are sets of state of birth dummy variables, a and d are intercepts, and all other variables are as defined in the OLS estimation. The states' compulsory education laws are calculated as states' mandated age for obtaining a work permit minus the mandated age at which children must start school in each state. States independently determine the ages at which these two events can occur, so there is variation in the compulsory education law across states. There are also some variations within states because the ages at which these two events occur are usually amended over time within states. For the cohort being studied in this paper, the states' compulsory education laws is an exogenous variable because it randomly applies to respondents based on their year of birth and it is not a position that respondents can select into. It is highly correlated with the level of respondents' education because respondents who otherwise

would have dropped out of school are forced to acquire more years of schooling based on the law in effect in their state of birth. This makes the compulsory schooling law a good instrument for education.

After estimating a simple OLS regression of the average level of education per group on the set of dummy variables for the states' compulsory education laws, I consider endogeneity: If variables that affect both education and mortality rate are omitted from the controls, education is endogenous because of omitted variables, the OLS estimator will be inconsistent. To examine this, I estimate a two-stage least squares (2SLS) model using dummy variables for the states' compulsory education laws as instruments. I first performed an F-test to test the null hypothesis that the exogenous instruments have no explanatory power in predicting education. This confirmed that the instruments contribute significantly to explaining the variation in education.

Next, I used F-test values to judge the strength of the instruments. According to Stock and Staiger (1997), the value of the F-test statistics should be greater than 10 to ensure that the maximum bias in the 2SLS estimators is less than 10% bias of the OLS estimator and when greater than 5 the maximum bias in 2SLS estimators is less than 20% bias of the OLS estimator. If the F-test statistics are below 5, I consider them to be weak, but I use the Montiel-Pflueger robust weak instrument test (Pflueger and Wang, 2014), which is an extension of Stock and Yogo's (2005) test for weak instrument to confirm the strength of my instruments. Stock and Yogo's (2005) test is based on the assumption of homoskedastic serially uncorrelated model errors, while Pflueger and Wang's (2014) test allows for heteroskedasticity, autocorrelation, and clustering, making it a more robust test. To perform the test, I choose a significance level of 5% and a weak instrument threshold of $\tau=10\%$. The threshold level indicates the tolerable level of bias of the 2SLS estimator relative to the bias of the OLS estimator. The null hypothesis is that the 2SLS estimator approximate bias exceeds the τ fraction of the OLS estimator bias. If the effective F-test statistic is greater than the critical value for the chosen threshold ($\tau=10\%$), then we reject the null hypothesis of weak instruments for the 2SLS; otherwise we fail to reject the null hypothesis.

Finally, I perform an endogeneity test (Wu-Hausman test) to determine whether education is exogenous in the mortality equation. The result of the endogeneity test indicates whether the WLS estimator is consistent and unbiased. I also report the overidentification test (Sargan test) with a null hypothesis that the overidentifying restrictions are valid. This is a test for correct specification of moment restriction for the 2SLS estimator. A rejection of the test confirms misspecification of the model. Results of the above tests are reported and discussed in Section 2.6.

2.5 Data

I commence by first replicating Lleras-Muney's (2005) study of Caucasians (both Hispanic and Non-Hispanic White, hereafter known as White-All group) and then applying the same analysis to test for the effect of education on health separately for African-Americans (Black), Asians, Hispanics, and Non-Hispanic Whites (White-NH) as well. I utilize two random samples of US Census data.² The 'old' data set is a 1% sample for 1960, 1970 and 1980 and the 'new' data is a 5% random sample for 1980, 1990 and 2000.³ Both data sets consist of individuals in the above racial and ethnic groups who were at least 14 years old between 1915 and 1939 (referred to as the 'old cohort') and born in the 48 states of the Union.⁴ The analysis is also performed for a younger cohort born between 1935 and 1959 (referred to as the 'new cohort'). Observations with missing values for the following variables, age, sex, race, education, and state of birth are dropped from the study samples. The second data set was used because it has more observations of individuals in minority groups.

I aggregate the data sets into groups by gender, birth year cohort, and state of birth and calculate

²Integrated Public Use Microdata Series (IPUMS), University of Minnesota, Minnesota Population Center.

³The first consists of a 1% 1960 general sample, 1% 1970 Form 2 state sample and 1% 1980 Metro sample. The second consists of a 5% 1980 state sample, 5% 1990 general sample and 5% 2000 general sample.

⁴48 states since Alaska and Hawaii were not yet part of the Union.

number of deaths over two 10-year periods. The mortality rate is a crude measure of health status for a population, but is the best available measure in the IPUMS data⁵ The 10-year death rates for each group are calculated using the following formula:

$$\text{Deathrate}_{y0} = \frac{N_{y1} - N_{y0}}{N_{y0}}$$

This method yields 2400 groups, each group having two sets of 10-year death rates, or a total of 4800 observations (if there are no missing groups). I use the same data describing state characteristics, compulsory attendance laws, and child labor laws as used in Lleras-Muney (2005).⁶ Definitions of analytical variables are provided in Table 2.2.

Table 2.2: Definition of Empirical Data Variables

Variable	Definition
d	Average 10 year mortality rate
schl	Average years of schooling
conts	Dummy variable for continuation school law enforced in the states
childcom	Compulsory education in State when individuals were 14 years old
childcomdumN	Dummy variables for childcom with N compulsory years of schooling
p-urb	Percentage of population residing in urban area
p-for	Percentage of population who are foreign born
p-blk	Percentage of population who are Black
p-emp-mf	Percentage of population employed in manufacturing
mwage	Average annual wages in manufacturing per worker
val-acr	Average value of farm property per acre
doc-c	Number of doctors per capita
ed-ex-c	State expenditure on education
sch-ml	Number of schools per squared mile

The years of compulsory schooling according to the child labor laws (childcom) for each state are calculated as the minimum age at which a work permit can be obtained in the state, minus the

⁵1960-1970 and 1970-1980 for the first data set, 1980-1990 and 1990-2000 for the second data set.

⁶Available at <http://www.econ.ucla.edu/alleras/research/data.html>. The data were extracted originally from the US Department of Labor, Children's Bureau, US Office of Education, Pupil Personnel Education and US Department of the Interior, Bureau of Education publications between 1915 to 1939.

maximum age that a child must begin school in that state.

Education policies are made at the state level in the United States, so different states have different years of compulsory schooling. The variable `childcomdumN` is a dummy which is equal to one if an individual has `N` years of compulsory schooling and zero otherwise. There are eight possible values for `N`: 0, 4, 5, 6, 7, 8, 9, and 10 years of compulsory schooling.

The state characteristics data (when individuals are 14 years old) and the aggregate census data are merged with the data describing the compulsory state law in operation when the individuals are 14 years old. Because the two data sets from IPUMS (old and new) have education coded differently, I perform my analyses using both alternative codes for the two data sets. This yields four sets of results. However, because I found that the education coding did not significantly affect the estimates, I report summary statistics for two data sets in Tables 2.3 and 2.4.⁷ Only the summary statistics describing the variable `schl` differ between the old and new codes for each group's data.

Tables 2.3 and 2.4 show the summary statistics of the first and second data set respectively for the 5 groups: White-All (Hispanic and non-Hispanic), Black (African American), Asian, Hispanic, and Non-Hispanic White (White-NH). In the second data set, the average 10-year death rates for the 5 groups are 33%, 41%, 38%, 40%, and 33%, respectively, while the average years of schooling are 10 years, 7 years, 11 years, 6 years, and 10 years, respectively. In the first data set, the death rates are 11%, 14%, 21%, 27%, and 11%, respectively, with 10 years, 7 years, 11 years, 7 years, and 10 years of average schooling, respectively. Since both data sets are of individuals in the same birth year cohort, the differences in the 10-year death rates may not only be due to aging but also may be due to medical innovations and improved health services over the years.

All monetary values (manufacturing wage, education expenditures, net income and farm values) are converted to real dollars, with 1982-84 as the base period, by using the Consumer Price Index series provided by the Bureau of Labor Statistics.⁸

⁷I recode the old schooling codes to range from a minimum of zero to a maximum of eighteen years of schooling for consistency. Summary statistics using the alternative education coding are similar and available upon request.

⁸Found online at <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiiai.txt>

Table 2.3: Summary Statistics for Old Data & Old Cohort

Variable	White-All		Black		Asian		Hispanic		White-NH	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
d	0.106	0.136	0.140	0.306	0.207	0.675	0.266	0.457	0.107	0.138
schl	10.549	0.989	7.627	1.587	11.902	2.222	7.770	2.748	10.593	0.989
conts	0.668	0.471	0.225	0.418	0.929	0.257	0.537	0.499	0.671	0.470
childcom	6.885	1.186	6.329	1.599	6.773	0.686	6.628	1.531	6.889	1.179
childcomdum0	0.008	0.089	0.039	0.194	0.003	0.055	0.030	0.169	0.008	0.087
childcomdum4	0.020	0.138	0.054	0.226	0.010	0.099	0.064	0.244	0.019	0.136
childcomdum5	0.007	0.083	0.018	0.131	0.282	0.450	0.001	0.037	0.007	0.084
childcomdum6	0.253	0.435	0.313	0.464	0.651	0.477	0.179	0.383	0.254	0.435
childcomdum7	0.561	0.496	0.513	0.500	0.034	0.182	0.548	0.498	0.561	0.496
childcomdum8	0.077	0.266	0.027	0.162	0.007	0.083	0.154	0.361	0.075	0.264
childcomdum9	0.035	0.184	0.026	0.158	0.012	0.110	0.019	0.135	0.035	0.185
childcomdum10	0.040	0.195	0.011	0.105	0.012	0.110	0.005	0.072	0.040	0.197
1970 dummy	0.471	0.499	0.457	0.498	0.542	0.498	0.470	0.499	0.471	0.499
female	0.517	0.500	0.536	0.499	0.485	0.500	0.500	0.500	0.518	0.500
age	50.366	8.481	50.237	8.607	47.425	7.906	48.275	8.300	50.399	8.481
Born 1901	0.029	0.167	0.035	0.185	0.011	0.103	0.018	0.131	0.029	0.167
Born 1902	0.025	0.157	0.023	0.151	0.007	0.083	0.015	0.123	0.025	0.157
Born 1903	0.028	0.166	0.029	0.167	0.009	0.095	0.016	0.126	0.028	0.166
Born 1904	0.029	0.169	0.028	0.165	0.012	0.110	0.019	0.136	0.029	0.169
Born 1905	0.031	0.174	0.033	0.179	0.008	0.087	0.020	0.139	0.031	0.174
Born 1906	0.032	0.177	0.033	0.180	0.012	0.110	0.024	0.153	0.033	0.178
Born 1907	0.033	0.180	0.031	0.173	0.013	0.113	0.023	0.151	0.034	0.180
Born 1908	0.036	0.186	0.034	0.182	0.012	0.110	0.027	0.163	0.036	0.187
Born 1909	0.036	0.187	0.034	0.181	0.018	0.131	0.026	0.159	0.036	0.188
Born 1910	0.038	0.191	0.039	0.194	0.031	0.172	0.028	0.166	0.038	0.192
Born 1911	0.039	0.193	0.044	0.206	0.024	0.152	0.033	0.178	0.039	0.194
Born 1912	0.040	0.195	0.038	0.190	0.023	0.150	0.034	0.181	0.040	0.195
Born 1913	0.042	0.200	0.041	0.199	0.026	0.159	0.035	0.183	0.042	0.200
Born 1914	0.043	0.202	0.040	0.195	0.034	0.180	0.040	0.197	0.043	0.202
Born 1915	0.044	0.205	0.042	0.201	0.044	0.206	0.037	0.190	0.044	0.206
Born 1916	0.044	0.205	0.041	0.199	0.056	0.229	0.041	0.198	0.044	0.206
Born 1917	0.044	0.206	0.041	0.197	0.055	0.228	0.042	0.201	0.044	0.206
Born 1918	0.046	0.209	0.044	0.204	0.058	0.234	0.048	0.214	0.046	0.209
Born 1919	0.047	0.213	0.045	0.208	0.054	0.226	0.054	0.225	0.047	0.212
Born 1920	0.048	0.213	0.054	0.226	0.064	0.245	0.059	0.236	0.048	0.213
Born 1921	0.048	0.214	0.048	0.215	0.079	0.269	0.065	0.246	0.048	0.214
Born 1922	0.050	0.217	0.048	0.213	0.070	0.256	0.072	0.258	0.049	0.216
Born 1923	0.049	0.215	0.051	0.220	0.104	0.305	0.071	0.257	0.048	0.215
Born 1924	0.049	0.215	0.050	0.218	0.089	0.285	0.069	0.254	0.048	0.215
Born 1925	0.050	0.217	0.052	0.223	0.089	0.284	0.084	0.277	0.049	0.216
p-urb	53.523	21.276	34.176	16.961	65.311	13.113	46.909	17.916	53.627	21.311
p-for	11.737	8.522	3.833	5.798	15.358	4.900	10.449	6.376	11.757	8.551
p-blk	8.983	11.900	28.847	15.005	2.387	4.983	8.391	8.322	8.992	11.948
p-emp-mf	0.067	0.038	0.049	0.030	0.050	0.024	0.032	0.027	0.067	0.038
mwage	7161.911	1368.111	5446.932	1421.176	8256.746	901.767	7282.721	1101.671	7160.019	1371.930
val-acr	540.048	276.324	350.269	181.804	602.621	210.273	336.437	262.106	543.236	275.375
doc-c	0.001	0.000	0.001	0.000	0.002	0.000	0.001	0.000	0.001	0.000
ed-ex-c	96.474	42.137	59.880	33.250	144.500	35.574	103.686	41.006	96.361	42.149
sch-ml	0.174	0.090	0.127	0.059	0.073	0.072	0.068	0.073	0.176	0.090
N	4795		3138		490		2062		4795	

(1) SD-standard deviation

Table 2.4: Summary Statistics for New Data & Old Cohort

Variable	White-All		Black		Asian		Hispanic		White-NH	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
d	0.328	0.287	0.408	0.290	0.380	0.504	0.396	0.424	0.327	0.288
schl	10.325	1.371	7.295	2.002	11.552	2.323	6.186	2.500	10.376	1.379
conts	0.684	0.465	0.223	0.416	0.859	0.348	0.464	0.499	0.686	0.464
childcom	6.982	1.121	6.530	1.345	6.738	0.846	6.716	1.313	6.985	1.116
childcomdum0	0.005	0.067	0.022	0.147	0.004	0.062	0.017	0.129	0.004	0.066
childcomdum4	0.015	0.120	0.039	0.192	0.011	0.104	0.064	0.244	0.014	0.118
childcomdum5	0.005	0.072	0.011	0.106	0.009	0.093	0.001	0.031	0.005	0.073
childcomdum6	0.232	0.422	0.303	0.459	0.278	0.448	0.167	0.373	0.233	0.423
childcomdum7	0.573	0.495	0.553	0.497	0.639	0.480	0.574	0.494	0.573	0.495
childcomdum8	0.083	0.276	0.030	0.170	0.035	0.185	0.163	0.369	0.082	0.274
childcomdum9	0.044	0.205	0.032	0.175	0.014	0.117	0.010	0.101	0.044	0.206
childcomdum10	0.043	0.203	0.011	0.103	0.010	0.099	0.004	0.060	0.044	0.204
1990 dummy	0.434	0.496	0.388	0.487	0.388	0.487	0.424	0.494	0.435	0.496
female	0.568	0.495	0.588	0.492	0.567	0.496	0.545	0.498	0.568	0.495
age	68.522	7.803	68.029	7.790	66.305	7.128	66.719	7.662	68.553	7.801
Born 1901	0.015	0.120	0.017	0.131	0.012	0.110	0.010	0.097	0.015	0.120
Born 1902	0.015	0.120	0.013	0.115	0.010	0.098	0.009	0.093	0.015	0.120
Born 1903	0.017	0.129	0.017	0.131	0.012	0.110	0.010	0.102	0.017	0.130
Born 1904	0.019	0.138	0.018	0.134	0.014	0.117	0.012	0.111	0.019	0.138
Born 1905	0.021	0.145	0.022	0.147	0.014	0.116	0.015	0.121	0.022	0.145
Born 1906	0.024	0.153	0.025	0.156	0.014	0.119	0.016	0.125	0.024	0.154
Born 1907	0.026	0.160	0.025	0.158	0.016	0.126	0.019	0.136	0.027	0.161
Born 1908	0.029	0.169	0.028	0.165	0.019	0.137	0.021	0.142	0.030	0.169
Born 1909	0.031	0.173	0.029	0.169	0.021	0.142	0.021	0.145	0.031	0.174
Born 1910	0.034	0.180	0.036	0.185	0.021	0.142	0.024	0.152	0.034	0.180
Born 1911	0.037	0.188	0.039	0.194	0.024	0.153	0.029	0.169	0.037	0.188
Born 1912	0.039	0.194	0.038	0.192	0.026	0.160	0.033	0.179	0.039	0.194
Born 1913	0.041	0.199	0.042	0.200	0.031	0.173	0.035	0.183	0.042	0.200
Born 1914	0.044	0.204	0.042	0.202	0.035	0.184	0.038	0.190	0.044	0.205
Born 1915	0.047	0.211	0.047	0.211	0.044	0.205	0.041	0.198	0.047	0.211
Born 1916	0.048	0.214	0.045	0.207	0.047	0.211	0.042	0.201	0.048	0.214
Born 1917	0.050	0.217	0.046	0.209	0.051	0.221	0.046	0.209	0.050	0.217
Born 1918	0.052	0.222	0.049	0.216	0.055	0.228	0.048	0.214	0.052	0.223
Born 1919	0.053	0.224	0.051	0.221	0.060	0.237	0.052	0.221	0.053	0.224
Born 1920	0.055	0.229	0.060	0.237	0.068	0.252	0.066	0.249	0.055	0.228
Born 1921	0.059	0.235	0.057	0.232	0.072	0.258	0.072	0.259	0.059	0.235
Born 1922	0.060	0.238	0.059	0.236	0.076	0.265	0.078	0.268	0.060	0.238
Born 1923	0.060	0.237	0.063	0.244	0.079	0.269	0.080	0.272	0.060	0.237
Born 1924	0.060	0.238	0.062	0.240	0.092	0.289	0.085	0.279	0.060	0.237
Born 1925	0.063	0.244	0.068	0.251	0.088	0.283	0.098	0.298	0.063	0.243
p-urb	53.895	21.082	33.995	16.051	61.922	16.723	44.809	15.719	54.019	21.110
p-for	11.447	8.363	3.426	5.265	14.161	6.061	9.145	5.550	11.477	8.389
p-blk	8.921	11.700	29.173	14.533	4.416	8.991	9.544	8.427	8.917	11.732
p-emp-mf	0.064	0.037	0.047	0.026	0.050	0.027	0.027	0.021	0.065	0.037
mwage	7220.721	1376.094	5406.919	1371.822	7981.515	1205.624	7172.163	1084.345	7221.705	1379.221
val-acr	529.755	269.272	338.368	174.613	581.281	226.341	290.751	231.710	532.954	268.229
doc-c	0.001	0.000	0.001	0.000	0.002	0.000	0.001	0.000	0.001	0.000
ed-ex-c	101.278	41.397	62.066	31.804	135.953	44.391	101.575	39.004	101.263	41.421
sch-ml	0.170	0.090	0.122	0.056	0.084	0.078	0.056	0.057	0.172	0.089
N	4799		3715		1726		2601		4799	

(1) SD-standard deviation

2.6 Results

2.6.1 Older Cohorts

My replications of analysis was exact since I used the same cohort and data set. Both predicted 60 percentage point reduction in death rate associated with a year increase in education. I then extended the analysis to the various groups. The first step is to estimate the effect of compulsory education on average level of education. The estimates for the separate groups are reported in Tables 2.5 through 2.9. Each of the tables contains six columns of weighted least squares estimates of the effect of compulsory education law on educational attainment. The first three columns were created using the first data set and the last three utilize the second data set. All analyses are based on aggregate data; the models in columns 1 and 4 are formed using the average compulsory law variable "childcom," which is the compulsory law in effect in the group's state of birth when they were 14 years old without state characteristics, region, and region*cohort.

The models in columns 2 and 5 include state characteristics, region, and region*cohort. Columns 3 and 6 are models formed using the compulsory schooling dummy variables (instead of the average compulsory law variable) as well as variables representing state characteristics, region, and region*cohort. All the models include 24 birth year cohort dummy variables and 47 state of birth dummy variables; the standard errors are clustered by the state of birth and cohort level. The regressions also include a dummy variable for the 1970 census. This dummy variable measures the average difference in the level of schooling (Tables 2.5 to 2.9) and the 10-year mortality rates (Tables 2.10 to 2.12) for individuals in the 1970 and 1980 censuses respectively. A significant positive coefficient indicates that individuals in the 1970 census experience a higher effect than individuals in the 1980 census and a significant negative coefficient expresses a lower average effect.

Table 2.5: Effect of Compulsory Schooling on Education for White-All Group

column	old data old cohort			new data old cohort		
	1 schl	2 schl	3 schl	4 schl	5 schl	6 schl
childcom	0.0475*** (0.00830)	0.0457*** (0.00963)		0.0460*** (0.00930)	0.0429*** (0.00810)	
childcomdum4			0.373*** (0.112)			0.344*** (0.0854)
childcomdum5			0.287** (0.122)			0.255*** (0.0881)
childcomdum6			0.332*** (0.111)			0.256*** (0.0809)
childcomdum7			0.439*** (0.110)			0.384*** (0.0804)
childcomdum8			0.427*** (0.113)			0.381*** (0.0851)
childcomdum9			0.545*** (0.116)			0.498*** (0.0881)
childcomdum10			0.361*** (0.118)			0.288*** (0.0984)
conts	0.0456 (0.0307)	0.0325 (0.0328)	0.0211 (0.0326)	-0.00632 (0.0348)	-0.00208 (0.0338)	-0.0171 (0.0341)
female	0.115*** (0.0172)	0.115*** (0.0173)	0.115*** (0.0173)	0.112*** (0.0200)	0.112*** (0.0202)	0.113*** (0.0202)
1970 dummy	0.178*** (0.00723)	0.177*** (0.00730)	0.177*** (0.00730)	-1.339*** (0.0304)	-1.340*** (0.0306)	-1.340*** (0.0307)
states characteristics	N	Y	Y	N	Y	Y
states dummy variables	Y	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y	Y
region	N	Y	Y	N	Y	Y
region*cohort	N	Y	Y	N	Y	Y
No of groups	4795	4795	4795	4799	4799	4799
No of observations	814805	814805	814805	3049628	3049628	3049628
R-sq	0.890	0.895	0.895	0.882	0.886	0.887
F-test statistics			7.60***			9.62***

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.6: Effect of Compulsory Schooling on Education for Black Group

column	old data old cohort			new data old cohort		
	1 schl	2 schl	3 schl	4 schl	5 schl	6 schl
childcom	0.0251* (0.0139)	0.0137 (0.0146)		0.0286** (0.0119)	0.0263** (0.0133)	
childcomdum4			0.0177 (0.0936)			0.115 (0.105)
childcomdum5			0.00927 (0.130)			0.340*** (0.102)
childcomdum6			-0.0608 (0.100)			0.115 (0.114)
childcomdum7			0.0263 (0.101)			0.136 (0.108)
childcomdum8			0.148 (0.155)			0.0593 (0.121)
childcomdum9			0.323*** (0.124)			0.304** (0.128)
childcomdum10			0.181 (0.300)			0.344 (0.251)
conts	0.145** (0.0649)	0.0163 (0.0720)	0.0137 (0.0760)	0.260*** (0.0606)	0.212*** (0.0641)	0.195*** (0.0664)
female	0.806*** (0.0266)	0.806*** (0.0270)	0.806*** (0.0270)	0.907*** (0.0209)	0.907*** (0.0212)	0.907*** (0.0212)
1970 dummy	0.185*** (0.0252)	0.185*** (0.0255)	0.185*** (0.0255)	-2.341*** (0.0330)	-2.341*** (0.0334)	-2.341*** (0.0334)
states characteristics	N	Y	Y	N	Y	Y
states dummy variables	Y	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y	Y
region	N	Y	Y	N	Y	Y
region*cohort	N	Y	Y	N	Y	Y
No of groups	3138	3138	3138	3715	3715	3715
No of observations	84313	84313	84313	283956	283956	283956
R-sq	0.812	0.818	0.819	0.898	0.901	0.901
F-test statistics			2..76**			3.95**

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.7: Effect of Compulsory Schooling on Education for Asian Group

column	old data old cohort			new data old cohort		
	1 schl	2 schl	3 schl	4 schl	5 schl	6 schl
childcom	-0.131 (0.270)	-0.0653 (0.331)		-0.106 (0.0963)	0.165 (0.108)	
childcomdum4			0 (.)			0.282 (1.122)
childcomdum5			4.467** (2.109)			1.387 (1.192)
childcomdum6			4.201** (2.051)			1.296 (1.123)
childcomdum7			4.647** (2.019)			1.567 (1.124)
childcomdum8			2.395 (2.336)			1.318 (1.177)
childcomdum9			3.392 (2.662)			1.580 (1.265)
childcomdum10			6.063** (2.991)			1.509 (1.336)
conts	-2.208* (1.308)	-3.250** (1.638)	-2.671 (1.686)	0.00379 (0.446)	-0.161 (0.451)	-0.115 (0.456)
female	-0.434** (0.176)	-0.511*** (0.195)	-0.515*** (0.198)	-0.648*** (0.0890)	-0.655*** (0.0907)	-0.655*** (0.0909)
1970 dummy	0.187 (0.197)	0.125 (0.226)	0.116 (0.229)	-0.484*** (0.103)	-0.458*** (0.103)	-0.460*** (0.104)
states characteristics	N	Y	Y	N	Y	Y
states dummy variables	Y	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y	Y
region	N	Y	Y	N	Y	Y
region*cohort	N	Y	Y	N	Y	Y
No of groups	490	490	490	1726	1726	1726
No of observations	1310	1310	1310	7158	7158	7158
R-sq	0.328	0.476	0.487	0.292	0.333	0.334
F-test statistics			1.66			0.72

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.8: Effect of Compulsory Schooling on Education for Hispanic) Group

column	old data old cohort			new data old cohort		
	1 schl	2 schl	3 schl	4 schl	5 schl	6 schl
childcom	0.0807* (0.0420)	0.0583 (0.0445)		0.00804 (0.0306)	-0.0990*** (0.0363)	
childcomdum4			-0.161 (0.458)			-0.271 (0.431)
childcomdum5			1.884 (1.301)			1.184 (0.983)
childcomdum6			0.199 (0.443)			-0.268 (0.429)
childcomdum7			-0.109 (0.450)			-0.420 (0.431)
childcomdum8			0.414 (0.375)			-0.821** (0.328)
childcomdum9			-0.158 (0.560)			-1.080* (0.566)
childcomdum10			1.362 (0.893)			0.520 (0.842)
conts	0.0615 (0.216)	-0.287 (0.270)	-0.306 (0.272)	0.124 (0.167)	0.0437 (0.211)	0.0935 (0.222)
female	-0.499*** (0.0591)	-0.513*** (0.0600)	-0.512*** (0.0600)	-0.349*** (0.0663)	-0.353*** (0.0672)	-0.353*** (0.0673)
1970 dummy	0.226*** (0.0653)	0.247*** (0.0660)	0.246*** (0.0661)	-1.338*** (0.0755)	-1.341*** (0.0767)	-1.341*** (0.0768)
states characteristics	N	Y	Y	N	Y	Y
states dummy variables	Y	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y	Y
region	N	Y	Y	N	Y	Y
region*cohort	N	Y	Y	N	Y	Y
No of groups	2062	2062	2062	2601	2601	2601
No of observations	12562	12562	12562	34195	34195	34195
R-sq	0.729	0.754	0.755	0.717	0.735	0.735
F-test statistics			1.66			2.08**

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.9: Effect of Compulsory Schooling on Education for Non- Hispanic White Group

column	old data old cohort			new data old cohort		
	1 schl	2 schl	3 schl	4 schl	5 schl	6 schl
childcom	0.0472*** (0.00769)	0.0455*** (0.00884)		0.0432*** (0.00883)	0.0424*** (0.00770)	
childcomdum4			0.321*** (0.0963)			0.284*** (0.0774)
childcomdum5			0.291*** (0.110)			0.237*** (0.0811)
childcomdum6			0.328*** (0.0981)			0.236*** (0.0751)
childcomdum7			0.434*** (0.0978)			0.355*** (0.0742)
childcomdum8			0.408*** (0.100)			0.359*** (0.0789)
childcomdum9			0.524*** (0.104)			0.455*** (0.0818)
childcomdum10			0.373*** (0.107)			0.295*** (0.0922)
conts	0.0224 (0.0300)	-0.0102 (0.0317)	-0.0155 (0.0315)	-0.0380 (0.0342)	-0.0524 (0.0321)	-0.0633* (0.0323)
female	0.122*** (0.0172)	0.122*** (0.0174)	0.122*** (0.0174)	0.115*** (0.0200)	0.115*** (0.0202)	0.116*** (0.0202)
1970 dummy	0.174*** (0.00713)	0.174*** (0.00719)	0.174*** (0.00720)	-1.353*** (0.0305)	-1.354*** (0.0307)	-1.354*** (0.0307)
states characteristics	N	Y	Y	N	Y	Y
states dummy variables	Y	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y	Y
region	N	Y	Y	N	Y	Y
region*cohort	N	Y	Y	N	Y	Y
No of groups	4795	4795	4795	4799	4799	4799
No of observations	802243	802243	802243	3006620	3006620	3006620
R-sq	0.893	0.898	0.898	0.885	0.889	0.890
F-test statistics			7.44***			9.05***

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

For the White-All and White-NH populations shown in Tables 2.5 and 2.9, respectively, all the effects of the different dummy variables for compulsory schooling on education are positive and significant. The expectation is that individuals residing in states with 10 years of compulsory schooling will acquire more schooling than individuals living in states with nine years of compulsory schooling, who in turn will obtain more education than those living in states with eight years, and so on. However, the coefficient estimates on schooling do not consistently increase as the years of compulsory schooling increase. This may be due to the aggregation of the data and the fact that the different groups are not equally weighted.

For the three minority groups the story is different. Some of the dummy variables representing compulsory schooling have positive and significant coefficients, some coefficients are not significant, and some are negative (Tables 2.6, 2.7 and 2.8). The estimates are relative to the effect of the reference group (no compulsory schooling requirement). The joint F-test statistic to test whether the dummy variables for compulsory schooling are all equal to zero is reported at the bottom of Tables 2.5 to 2.9. The F-test statistics in Table 2.7 indicate that we cannot reject the null hypothesis that all the instruments are jointly zero. This means that compulsory school laws are not good predictors for education, particularly for this population and cohort being studied. This result is surprising given that in the summary statistics the Asian groups have the highest level of education on average, but there are only 490 groups. I do not have access to any other instrument to use but I did use a larger data set, and later a younger cohort to see if more observations would make a difference. For the first and second data sets, the results of the weighted least squares (WLS) of the effect of education on 10-year mortality rates show a significant reduction for Black (4.84% and 3.06% points, respectively), White-NH (3.54% and 3.95%, respectively) and White-All (3.48% and 4.08%, respectively) populations as shown in Table 2.10. Estimates for both Asians and Hispanics are not significant.

Table 2.10: Effect of Education on Mortality Rate-WLS

Old Data & Old Cohort						
Group	White-All	Black	Asian	Hispanic	White-NH	
10yr death rate	Estimate					
schl	-0.0348*** (0.00436)	-0.0484*** (0.00768)	0.00129 (0.0225)	0.000332 (0.00680)	-0.0354*** (0.00457)	
female	-0.0717*** (0.00264)	-0.0254*** (0.00886)	-0.141* (0.0742)	-0.0437*** (0.0149)	-0.0715*** (0.00268)	
1970 dummy	0.00236 (0.00435)	-0.0435*** (0.0158)	-0.0339 (0.124)	0.135*** (0.0361)	0.00369 (0.00443)	
State characteristics	Y	Y	Y	Y	Y	
State dummy variables	Y	Y	Y	Y	Y	
cohort dummy variables	Y	Y	Y	Y	Y	
Intercept	Y	Y	Y	Y	Y	
region	Y	Y	Y	Y	Y	
region*cohort	Y	Y	Y	Y	Y	
N	4795	3138	490	2062	4795	
R-sq	0.362	0.111	0.328	0.257	0.361	
New Data & Old Cohort						
Group	White-All	Black	Asian	Hispanic	White-NH	
10yr death rate	Estimate					
schl	-0.0408*** (0.00769)	-0.0306*** (0.00828)	0.00750 (0.00520)	-0.00235 (0.00642)	-0.0395*** (0.00780)	
female	-0.122*** (0.00295)	-0.100*** (0.00922)	-0.0447** (0.0180)	-0.0887*** (0.0109)	-0.122*** (0.00299)	
1970 dummy	0.206*** (0.00920)	0.0757*** (0.0176)	0.0656 (0.0488)	0.308*** (0.0453)	0.212*** (0.00921)	
State characteristics	Y	Y	Y	Y	Y	
State dummy variables	Y	Y	Y	Y	Y	
cohort dummy variables	Y	Y	Y	Y	Y	
Intercept	Y	Y	Y	Y	Y	
region	Y	Y	Y	Y	Y	
region*cohort	Y	Y	Y	Y	Y	
N	4799	3715	1726	2601	4799	
R-sq	0.683	0.498	0.412	0.292	0.686	

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

After the 2SLS estimation and weak instrument test, I performed tests of endogeneity (Durbin, and Wu-Hausman) to confirm that education is endogenous. I also performed the Sargan, and Basman tests of overidentification to test specification of moment restrictions for the model. Results of these tests are all reported in Tables 2.11 to 2.12. Tables 2.11 and 2.12 report results of the 2SLS model analysis of the effect of schooling on the 10-year mortality rates for the first and second data sets, respectively. Using the first and second data sets, schooling reduces the 10-year mortality rates significantly by 5.99% and 3.07% points respectively for the White-All group and by 5.67% and 3.23% points for White-NH. For the Black group, there is a significant reduction of 5.52% points when the second data set is used, but the estimated effect is nonsignificant when the first data set is used. For Asians and Hispanics, the estimated effects with both data sets are not significant.

The IV model was performed using the two-stage least squares method. The first stage F-test statistics are reported in Tables 2.11 and 2.12 along with the tests for endogeneity and overidentification. The first stage F-test statistics for White-All, Black, and White-NH are all significant in the model for both data sets but their F-test statistics are all below 10, implying that they are weak instruments. The Montiel-Pflueger robust weak instrument test is rejected for all groups in the second data set, while it was rejected for only the White-All, White-NH, and Hispanic groups in the first data set. These conflicting results for the two tests means that the results should be interpreted with caution. The first stage joint F-test is not significant for Asians in both analyses. While it is significant for Hispanics when the first data set is used, it is not significant when applied to the second data set.¹⁰ The endogeneity test fails to reject the null hypothesis that schooling (schl) is exogenous in the mortality analyses for all the race/ethnicity groups among the older cohort. This mean that the WLS estimates are consistent, so it is not necessary to use IV methods of estimation. From the overidentification test's results, I fail to reject the null hypothesis that the model's

^{10**} on the effective F-test statistic means the null hypothesis of weak instruments is rejected when $\tau=5\%$ and * means it is rejected when $\tau=10\%$ of OLS estimator bias.

Table 2.11: Effect of Education on Mortality Rate-IV (Old Data Old Cohort)

Group	White-All	Black	Asian	Hispanic	White-NH
10yr death rate			Estimate		
schl	-0.0599*** (0.0220)	-0.0742 (0.0805)	-0.0308 (0.0627)	0.0378 (0.0363)	-0.0567*** (0.0220)
female	-0.0688*** (0.00356)	-0.00432 (0.0647)	-0.155** (0.0653)	-0.0240 (0.0241)	-0.0689*** (0.00371)
1970 dummy	0.00673 (0.00585)	-0.0397* (0.0216)	-0.0444 (0.0985)	0.121*** (0.0352)	0.00732 (0.00580)
State characteristics	Y	Y	Y	Y	Y
State dummy variables	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y
Intercept	Y	Y	Y	Y	Y
region	N	N	N	N	N
region*cohort	N	N	N	N	N
firststage F-test	8.30***	1.97**	1.241	4.178***	9.68***
Tests of Endogeneity:					
Durbin (score) chi2(1)	0.535	0.047	0.121	0.339	0.356
P-value	0.465	0.828	0.728	0.561	0.551
Wu-Hausman F(1,N)	0.526	0.046	0.101	0.325	0.350
P-value	0.468	0.830	0.751	0.569	0.554
Robust regression F(1,N)	1.598	0.110	0.232	0.820	1.072
P-value	0.207	0.740	0.631	0.365	0.301
Weakivtest, level(0.5)	165.64**	11.53	NA	87.46**	140.35**
Overidentification Tests:					
Sargan chi2(6)	2.030	1.413	2.094	5.015	2.582
P-value	0.917	0.965	0.836	0.542	0.859
Basmann chi2(6)	1.992	1.373	1.734	4.808	2.535
P-value	0.920	0.968	0.885	0.569	0.865
Score chi2(6)	1.478	1.708	3.133	3.564	1.965
P-value	0.961	0.945	0.680	0.736	0.923
N	4795	3138	490	2062	4795
R-sq	0.355	0.099	0.282	0.232	0.356

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.12: Effect of Education on Mortality Rate-IV (New Data Old Cohort)

Group	White-All	Black	Asian	Hispanic	White-NH
10yr death rate			Estimate		
schl	-0.0307** (0.0155)	-0.0552* (0.0313)	-0.0797 (0.0720)	0.00559 (0.0571)	-0.0323* (0.0170)
female	-0.123*** (0.00297)	-0.0778*** (0.0286)	-0.101** (0.0510)	-0.0859*** (0.0218)	-0.123*** (0.00310)
1970 dummy	0.219*** (0.0227)	0.0178 (0.0739)	0.0150 (0.0598)	0.316*** (0.0849)	0.221*** (0.0248)
State characteristics	Y	Y	Y	Y	Y
State dummy variables	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y
Intercept	Y	Y	Y	Y	Y
region	N	N	N	N	N
region*cohort	N	N	N	N	N
firststage F-test	6.908***	5.111***	1.251	0.885	6.875***
Tests of Endogeneity:					
Durbin (score) chi2(1)	0.028	0.101	1.229	0.004	0.011
P-value	0.868	0.751	0.268	0.952	0.915
Wu-Hausman F(1,N)	0.027	0.099	1.169	0.003	0.011
P-value	0.869	0.754	0.280	0.953	0.916
Robust regression F(1,N)	0.310	0.624	1.799	0.017	0.128
P-value	0.578	0.430	0.180	0.896	0.721
Weakivtest, level(0.5)	563.98**	95.98**	60.07**	20.51*	450.88**
Overidentification Tests:					
Sargan chi2(6)	0.218	0.749	3.847	2.084	0.270
P-value	1.000	0.993	0.697	0.912	1.000
Basmann chi2(6)	0.214	0.731	3.654	2.014	0.265
P-value	1.000	0.994	0.723	0.918	1.000
Score chi2(6)	0.127	0.994	2.087	1.201	0.145
P-value	1.000	0.986	0.912	0.977	1.000
N	4799	3715	1726	2601	4799
R-sq	0.682	0.492	0.258	0.285	0.685

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

moment restriction is well specified.

The direct effect of increasing years of compulsory schooling on 10-year mortality rates is analyzed and reported in Table 2.13. For both White-All and White-NH groups, the results reveal a significant reduction in mortality rate, but not for the three minority groups in the first data set. The second data set estimates show no significant reduction in mortality rates for all five groups. I expected that having a larger number of observations would yield results confirming the hypothesis that education reduces 10-year mortality rates, but the results from the larger data set do not confirm this hypothesis. This may be because participants are now older than those in the old data set and the age-related higher death rate may result in the insignificant effect.

2.6.2 Recent Cohorts

Because I did not find evidence of an effect of education on the mortality rates for Asians and Hispanics, because the laws were not strictly enforced for the Black population in this cohort, and because the number of observations for each of these minority groups was small for the birth-year cohort analyzed above, I re-estimated the model using a younger cohort. Only the second data set is used for analysis in this section to ensure a larger number of observations for the minority groups. Instead of studying individuals at least 14 years old between 1915-1939, the new cohort consists of individuals at least 14 years old between 1935-1959 in the 48 states.¹¹ Data with missing values for the following variables, age, sex, race, education, and state of birth were dropped from this analysis.

¹¹The original sources of the data are listed in Appendix A.

Table 2.13: Effect of an Increase in the Years of Compulsory Schooling on the 10-year Mortality Rate

Old data & Old cohort					
Group	White-All	Black	Asian	Hispanic	White-NH
10yr death rate	Estimate				
childcom	-0.00301** (0.00131)	-0.00253 (0.00282)	-0.0456 (0.0584)	-0.00306 (0.00790)	-0.00292** (0.00135)
female	-0.0757*** (0.00274)	-0.0644*** (0.00668)	-0.142* (0.0747)	-0.0438*** (0.0145)	-0.0758*** (0.00277)
1970 dummy	-0.00380 (0.00430)	-0.0525*** (0.0160)	-0.0334 (0.125)	0.135*** (0.0362)	-0.00247 (0.00437)
states characteristics	Y	Y	Y	Y	Y
states dummy variables	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y
region	Y	Y	Y	Y	Y
region*cohort	Y	Y	Y	Y	Y
N	4795	3138	490	2062	4795
R-sq	0.356	0.100	0.329	0.257	0.354
New Data & Old Cohort					
Group	White-All	Black	Asian	Hispanic	White-NH
10yr death rate	Estimate				
childcom	-0.000994 (0.000922)	-0.00201 (0.00163)	0.00446 (0.0143)	-0.00892 (0.00564)	-0.00135 (0.000956)
female	-0.126*** (0.00248)	-0.128*** (0.00370)	-0.0495*** (0.0176)	-0.0880*** (0.0107)	-0.127*** (0.00250)
1970 dummy	0.260*** (0.0101)	0.147*** (0.0154)	0.0622 (0.0488)	0.312*** (0.0452)	0.265*** (0.0101)
states characteristics	Y	Y	Y	Y	Y
states dummy variables	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y
region	Y	Y	Y	Y	Y
region*cohort	Y	Y	Y	Y	Y
N	4799	3715	1726	2601	4799
R-sq	0.678	0.494	0.411	0.292	0.682

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.14 shows the summary statistics for the new data set for the five groups analyzed. The average 10-year death rates for White-All, Black, Asian, Hispanic, and White-NH groups in the new cohort are 7%, 16%, 16%, 27%, and 7%, respectively, compared to 33%, 41%, 38%, 40%, and 33%, respectively, in the old cohort. The average years of schooling in the new cohort are 11 years, 10 years, 13 years, 9 years, and 12 years, respectively, compared to 10 years, 7 years, 11 years, 6 years, and 10 years, respectively, in the old cohort. The average 10-year death rates per group have become drastically reduced (more than 50%) except for Hispanics, and the average years of schooling increased for all groups.

I follow the same process as before. The joint significance F-test was performed to test whether all the instruments are not predictors of education level. The results are shown in Table 2.15 for the Asian and Hispanic groups, while Table 2.16 shows results for the White-All, White-NH, and Black groups. These results are similar to the results of the previous cohort analyzed. The joint F-test rejects the null hypothesis that all the instruments are not predictors for all five groups.

I estimate a WLS model of the effect of an average level of schooling per group on 10-year mortality rates. The results shown in Table 2.17 show that schooling reduces the mortality rates for the White-All, White-NH and Black groups. There is no significant effect for the Asian population, but schooling increases the mortality rate for the Hispanic population. Next, I proceed to estimate the 2SLS model to take care of the endogeneity problem. I performed the first stage F-test to test for weak instruments; the statistics are reported in Table 2.18. The fact that some of the F-test statistics are less than ten may mean that the instrument is weak. This will be a problem, as explained above, so the Montiel-Pflueger robust weak instrument test was performed as confirmation. The test is rejected for the White-All, White-NH, and Black groups at a significance level of 5% and a weak instrument threshold of $\tau=10\%$. I could not reject the null hypothesis of weak instrument for the Asian and Hispanic groups. As shown in Tables 2.16 and 2.15, the effect of the compulsory law dummy variables on schooling yields estimates that are mostly significant for all groups except Hispanics.

Table 2.14: Summary Statistics for New Data & New Cohort

Variable	White-All		Black		Asian		Hispanic		White-NH	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
d	0.074	0.105	0.157	0.151	0.161	0.507	0.271	0.336	0.070	0.108
schl	11.960	1.054	10.173	1.691	13.121	1.898	9.139	2.217	12.020	1.057
conts	0.617	0.486	0.276	0.447	0.872	0.335	0.491	0.500	0.620	0.485
childcom	7.767	1.227	7.465	1.901	7.108	0.943	7.482	0.900	7.774	1.233
childcomdum0	0.005	0.073	0.045	0.206	0.004	0.059	0.001	0.027	0.005	0.074
childcomdum4	0.002	0.043	0.002	0.048	0.000	0.022	0.012	0.107	0.002	0.041
childcomdum6	0.068	0.252	0.034	0.181	0.155	0.362	0.113	0.317	0.067	0.250
childcomdum7	0.427	0.495	0.469	0.499	0.674	0.469	0.312	0.463	0.430	0.495
childcomdum8	0.171	0.376	0.105	0.307	0.060	0.237	0.496	0.500	0.163	0.370
childcomdum9	0.273	0.445	0.324	0.468	0.090	0.286	0.062	0.242	0.277	0.448
childcomdum10	0.054	0.226	0.021	0.144	0.017	0.128	0.005	0.068	0.055	0.228
1990 dummy	0.494	0.500	0.447	0.497	0.474	0.499	0.439	0.496	0.496	0.500
female	0.515	0.500	0.560	0.496	0.515	0.500	0.521	0.500	0.515	0.500
age	51.527	8.855	50.591	8.739	52.274	8.870	50.170	8.742	51.569	8.855
Born 1921	0.038	0.190	0.032	0.175	0.042	0.201	0.026	0.158	0.038	0.191
Born 1922	0.039	0.193	0.033	0.178	0.045	0.206	0.028	0.164	0.039	0.193
Born 1923	0.038	0.192	0.035	0.184	0.046	0.210	0.029	0.167	0.038	0.192
Born 1924	0.039	0.192	0.034	0.182	0.054	0.226	0.030	0.171	0.039	0.193
Born 1925	0.041	0.197	0.038	0.190	0.052	0.221	0.035	0.184	0.041	0.198
Born 1926	0.039	0.194	0.037	0.189	0.050	0.218	0.035	0.185	0.039	0.194
Born 1927	0.039	0.194	0.036	0.187	0.047	0.212	0.036	0.185	0.039	0.194
Born 1928	0.040	0.197	0.038	0.192	0.043	0.202	0.039	0.193	0.040	0.197
Born 1929	0.038	0.191	0.035	0.185	0.037	0.188	0.039	0.194	0.038	0.191
Born 1930	0.039	0.194	0.039	0.195	0.041	0.199	0.043	0.203	0.039	0.194
Born 1931	0.039	0.194	0.037	0.190	0.038	0.192	0.042	0.201	0.039	0.194
Born 1932	0.036	0.187	0.036	0.186	0.035	0.183	0.040	0.195	0.036	0.187
Born 1933	0.037	0.188	0.040	0.196	0.035	0.183	0.038	0.192	0.037	0.188
Born 1934	0.035	0.184	0.038	0.192	0.033	0.180	0.039	0.193	0.035	0.184
Born 1935	0.037	0.189	0.040	0.197	0.034	0.180	0.040	0.196	0.037	0.189
Born 1936	0.037	0.189	0.041	0.197	0.031	0.173	0.040	0.197	0.037	0.189
Born 1937	0.037	0.189	0.039	0.194	0.031	0.173	0.041	0.197	0.037	0.189
Born 1938	0.039	0.193	0.041	0.199	0.028	0.166	0.042	0.202	0.039	0.193
Born 1939	0.038	0.192	0.041	0.197	0.031	0.173	0.041	0.199	0.038	0.192
Born 1940	0.041	0.198	0.046	0.210	0.034	0.180	0.046	0.210	0.041	0.198
Born 1941	0.042	0.201	0.046	0.210	0.037	0.188	0.044	0.206	0.042	0.201
Born 1942	0.043	0.203	0.045	0.208	0.040	0.195	0.045	0.207	0.043	0.203
Born 1943	0.051	0.219	0.050	0.218	0.041	0.198	0.051	0.221	0.051	0.219
Born 1944	0.049	0.216	0.049	0.216	0.046	0.209	0.054	0.226	0.049	0.216
Born 1945	0.049	0.215	0.052	0.223	0.051	0.220	0.057	0.233	0.048	0.214
p-urb	57.719	17.234	44.501	16.202	64.259	11.982	58.394	12.555	57.706	17.323
p-for	7.550	6.120	3.072	4.389	9.996	4.448	6.380	4.106	7.577	6.154
p-blk	9.346	9.978	24.351	13.098	4.834	6.671	8.439	6.109	9.373	10.044
p-emp-mf	0.086	0.043	0.070	0.034	0.067	0.031	0.049	0.031	0.087	0.043
mwage	12612.490	3491.897	10676.020	3443.498	13559.610	3540.216	13368.660	3333.997	12596.130	3493.123
val-acr	438.795	267.760	334.947	208.797	526.789	271.940	312.975	277.617	441.759	266.731
doc-c	0.001	0.000	0.001	0.000	0.002	0.000	0.001	0.000	0.001	0.000
ed-ex-c	158.141	72.608	130.367	67.510	198.304	85.253	185.540	89.906	157.463	71.973
sch-ml	0.130	0.085	0.096	0.056	0.061	0.064	0.043	0.047	0.132	0.084
N	4800		4120		2373		3568		4800	

(1) SD-standard deviation

Most of the estimates for the Hispanic group are also negative, meaning that increasing the number of years of compulsory schooling decreases the average level of schooling for the group with respect to the group with zero years of compulsory law (`childcomdum0`). The only major problem with the Asian group is the small observation numbers. The Asian group still has the highest level of education among all the groups, while the Hispanic population has the lowest; however, the compulsory law is not a good instrument for these groups.

The test of endogeneity is only significant for the Black group. This implies that for all the groups except for the Black group, schooling (`schl`) is an exogenous variable in the mortality equation, so the analysis for Blacks is best done using the IV method (but I used the IV method for all the groups; see results in Table 2.18). As shown in the results, even though the instrumental variable is considered not weak, we did not find a significant effect of education on mortality rates among this younger cohort for the Black population. The overidentification test results for all the groups are not significant, so we fail to reject the null hypothesis that there is no misspecification of moment.

The IV estimates of the effect of education on mortality rates for the Black, Asian, and Hispanic groups are not significant, as shown in Table 2.18. The direct effect of increasing years of compulsory schooling on 10-year mortality rates is analyzed and reported in Table 2.19. Direct effects estimated for all groups are not significant except for the Black group, for which increasing the average years of compulsory education significantly reduces the 10-year mortality rates. The reason why education is endogenous when the younger cohort is analyzed and exogenous in the analysis of the older cohort may be that the compulsory schooling law is more binding on the younger cohort of the Black group than on the older cohort. It may be that the effect of the compulsory schooling law for Blacks was delayed due to discrimination in schools and also due to poverty. As noted in Chapter 1, many Blacks required their children to work rather than go to school. On the other hand, for the White-All group, the compulsory law may no longer be relevant if members of the group generally acquire more education than the compulsory law in their state requires.

Table 2.15: Effect of Compulsory Schooling on Education (New Data New Cohort)

	Asian			Hispanic		
	schl	schl	schl	schl	schl	schl
childcom	0.153*	0.236**		0.0895*	-0.0750	
	(0.0812)	(0.0937)		(0.0491)	(0.0542)	
childcomdum4			0.236			-0.465
			(1.649)			(0.775)
childcomdum6			2.865**			-0.515
			(1.277)			(0.670)
childcomdum7			2.918**			-0.965
			(1.258)			(0.650)
childcomdum8			2.664**			-0.461
			(1.332)			(0.681)
childcomdum9			3.202**			-0.930
			(1.286)			(0.672)
childcomdum10			3.281**			-1.593*
			(1.411)			(0.916)
conts	-0.255	0.253	0.257	0.217	-0.187	-0.185
	(0.283)	(0.320)	(0.321)	(0.173)	(0.149)	(0.148)
female	-0.757***	-0.759***	-0.760***	-0.537***	-0.536***	-0.536***
	(0.0532)	(0.0539)	(0.0540)	(0.0296)	(0.0299)	(0.0300)
1990 dummy	-0.197***	-0.198***	-0.199***	-0.573***	-0.579***	-0.579***
	(0.0586)	(0.0588)	(0.0589)	(0.0823)	(0.0832)	(0.0833)
states characteristics	N	Y	Y	N	Y	Y
states dummy variables	Y	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y	Y
region	N	Y	Y	N	Y	Y
region*cohort	N	Y	Y	N	Y	Y
No of groups	2339	2339	2339	3521	3521	3521
No of observations	12139	12139	12139	95561	95561	95561
R-sq	0.295	0.332	0.333	0.815	0.834	0.834
F-test statistics			2.79***			3.01***

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.16: Effect of Compulsory Schooling on Education (New Data New Cohort)

	White-All		White-NH		Black	
	schl	schl	schl	schl	schl	schl
childcom	0.0319*** (0.00790)	0.00893 (0.00615)	0.0350*** (0.00817)	0.0204*** (0.00550)	-0.0216 (0.0137)	-0.0193*** (0.00654)
childcomdum4			0.310*** (0.0662)	0.175** (0.0692)		-0.342*** (0.0873)
childcomdum6			0.0246 (0.0556)	0.0269 (0.0558)		-0.138* (0.0829)
childcomdum7			0.137*** (0.0438)	0.163*** (0.0454)		-0.249*** (0.0533)
childcomdum8			0.0975** (0.0491)	0.147*** (0.0492)		-0.262*** (0.0741)
childcomdum9			0.137*** (0.0459)	0.178*** (0.0476)		-0.200*** (0.0575)
childcomdum10			-0.119* (0.0697)	0.133** (0.0619)		-0.914 (1.118)
conts	-0.0847*** (0.0227)	-0.0659*** (0.0222)	-0.108*** (0.0227)	-0.111*** (0.0219)	0.0591 (0.117)	-0.0124 (0.0570)
female	-0.212*** (0.0112)	-0.212*** (0.0113)	-0.203*** (0.0113)	-0.202*** (0.0114)	0.601*** (0.0202)	0.601*** (0.0204)
1990 dummy	-0.462*** (0.0165)	-0.461*** (0.0166)	-0.482*** (0.0163)	-0.482*** (0.0165)	-1.009*** (0.0417)	-1.010*** (0.0421)
states Characteristics	N	Y	N	Y	N	Y
states dummy variables	Y	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y	Y
region	N	Y	N	Y	N	Y
region*cohort	N	Y	N	Y	N	Y
No of groups	4748	4748	4748	4748	4068	4068
No of observations	4733757	4733757	4622154	4622154	497858	497858
R-sq	0.899	0.912	0.900	0.915	0.859	0.889
F-test statistics			12.56***	7.66***		5.04***

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.17: Effect of Education on Mortality Rate -WLS (New Data New Cohort)

Group	White-All	Black	Asian	Hispanic	White-NH
10yr death rate			Estimate		
schl	-0.0500*** (0.00402)	-0.0638*** (0.00466)	0.00196 (0.00597)	0.0213*** (0.00784)	-0.0438*** (0.00380)
female	-0.0569*** (0.00179)	-0.00340 (0.00357)	-0.0195 (0.0173)	-0.0183*** (0.00690)	-0.0557*** (0.00177)
1990 dummy	0.0794*** (0.00444)	-0.136*** (0.00744)	0.0107 (0.0280)	0.127*** (0.0322)	0.0916*** (0.00411)
N	4800	4120	2373	3568	4800
R-sq	0.666	0.397	0.204	0.091	0.692
State Characteristics	Y	Y	Y	Y	Y
State dummy variables	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y
Intercept	Y	Y	Y	Y	Y
region	Y	Y	Y	Y	Y
region*cohort	Y	Y	Y	Y	Y

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.18: Effect of Education on Mortality Rate -IV (New data New Cohort)

Group	White-All	Black	Asian	Hispanic	White-NH
10yr death rate			Estimate		
schl	-0.0382** (0.0183)	0.0379 (0.0346)	0.0219 (0.180)	0.00602 (0.0597)	-0.0336** (0.0169)
female	-0.0544*** (0.00416)	-0.0640*** (0.0206)	-0.00415 (0.137)	-0.0267 (0.0323)	-0.0536*** (0.00385)
1990 dummy	0.0848*** (0.00914)	-0.0345 (0.0361)	0.0112 (0.0435)	0.116** (0.0474)	0.0965*** (0.00869)
State characteristics	Y	Y	Y	Y	Y
State dummy variables	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y
Intercept	Y	Y	Y	Y	Y
region	N	N	N	N	N
region*cohort	N	N	N	N	N
firststage F-test	18.963***	8.381***	4.757**	2.16**	19.967***
Tests of Endogeneity:					
Durbin (score) chi2(1)	0.126	5.099**	0.020	0.013	0.116
P-value	0.723	0.024	0.888	0.909	0.733
Wu-Hausman F(1,N)	0.124	5.000**	0.019	0.013	0.114
P-value	0.725	0.025	0.890	0.910	0.735
Robust regression F(1,N)	0.335	7.281**	0.013	0.050	0.288
P-value	0.563	0.007	0.909	0.822	0.591
Weakivtest, level(0.5)	105.73**	41.17**	9.139	5.46	86.19**
Overidentification Tests:					
Sargan chi2(6)	1.312	2.689	5.986	0.879	3.247
P-value	0.934	0.748	0.308	0.972	0.662
Basmann chi2(6)	1.288	2.632	5.776	0.857	3.189
P-value	0.936	0.756	0.329	0.973	0.671
Score chi2(6)	0.752	2.098	1.463	0.501	1.253
P-value	0.980	0.835	0.917	0.992	0.940
N	4800	4120	2373	3568	4800
R-sq	0.664	0.246	0.185	0.082	0.690

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

Table 2.19: Effect of Increase in Years of Compulsory Schooling on 10-year Mortality Rate

Group	White-All	Black	Asian	Hispanic	White-NH
10yr death rate			Estimate		
childcom	-0.000738 (0.000741)	-0.00285** (0.00119)	-0.0130 (0.0160)	-0.00131 (0.00984)	-0.000688 (0.000782)
female	-0.0463*** (0.00164)	-0.0414*** (0.00310)	-0.0212 (0.0165)	-0.0297*** (0.00522)	-0.0468*** (0.00166)
1990 dummy	0.102*** (0.00369)	-0.0723*** (0.00737)	0.0103 (0.0278)	0.114*** (0.0322)	0.113*** (0.00344)
N	4800	4120	2373	3568	4800
R-sq	0.644	0.341	0.204	0.088	0.676
states characteristics	Y	Y	Y	Y	Y
states dummy variables	Y	Y	Y	Y	Y
cohort dummy variables	Y	Y	Y	Y	Y
intercept	Y	Y	Y	Y	Y
region	Y	Y	Y	Y	Y
region*cohort	Y	Y	Y	Y	Y

Standard errors in parentheses are clustered at the state-of-birth and cohort level

* p<0.10, ** p<0.05, *** p<0.01

2.7 Conclusion

In the first part of this research study (with the cohort 14 years old between 1915-1939), I find that education is exogenous in the mortality equation, which means that the WLS estimation is appropriate. I also found from my replications using the same sample as Lleras-Muney (2005) that not only does education reduce mortality for the White-All group, it also reduces it for Blacks but no significant effect was found for Asian and Hispanic groups. Lleras-Muney (2005) decided not to do the analysis for Blacks due to the fact that the compulsory schooling law may not be enforced for African American and also because of the problem of segregated schools in the early twentieth century. Lleras-Muney (2005) and Groot and Maassen Van Den Brink (2007) also found that education was exogenous. The results of the WLS indicate that education significantly re-

duces mortality rates for the White-All, Black, and White-NH groups, but education does not have a significant effect on mortality for the Asian and Hispanic groups.

In the second part of the research study (with the cohort 14 years old between 1935-1959), education is no longer exogenous for the Black group, although it is for the other groups. The WLS estimates show that education reduces mortality rates significantly for the White-All and White-NH groups, but significantly increases the mortality rate for Hispanics. Although an IV model is needed to draw a conclusion on the effect of education on Black mortality rates because of the endogeneity problem, the IV model results indicate that education does not have a significant effect on mortality rates. The fact that education is exogenous in the older cohort analysis and endogenous in the younger cohort analysis may be due to the segregated school system in the early twentieth century. Education for Blacks was not a priority during this period. The compulsory schooling law may not have been enforced for Blacks. Many Black schools received fewer funds than White schools and many Black families needed their children to work due to poverty. The endogeneity observed twenty years later may be due to health innovations over the years. Innovations like vaccinations against communicable diseases, water purification projects and even school lunch programs all impact an individual's health apart from the individual's level of education and their omission from the health equation may make education endogenous.

Although the choice of instrument is sufficient to measure the effect of education on the mortality rates of the White-All, White-NH, and Black groups, it is not a valid instrument to measure the effect for Asian and Hispanic groups. This may be because of the sample size, the use of aggregated data, school segregation, or socioeconomic factors that prevented minorities from sending their children to school. The lack of a conclusive causal inference regarding the effect of education on the health of these minority groups means that these results do not provide support for policies investing more in education, as such policies may not improve the health of individuals affected by the policies. I could not find a better instrument with available data for the cohort years that I am studying, so an alternative method of estimation needs to be explored. In my next essay, I consider

the effect of education on other measures of health (such as self-reported health), health behaviors, and health outcomes. Also, because the use of aggregated data may introduce measurement error in this analysis, I use microdata in my next research study.

CHAPTER 3

IMPACT OF EDUCATION ON HEALTH BEHAVIORS AND HEALTH OUTCOMES AMONG MINORITIES IN THE U.S.

3.1 Introduction

The effect of education on income or socioeconomic status (SES) of individuals is well established in labor economics (Galama and Van Kippersluis (2010); Hartog and Oosterbeek (1998); Maccini and Yang (2006)). We know that people who invest in a high level of education have a higher return to their investment on average. We also know that, due to the high cost of health insurance, treatments, and medical procedures, people with high income levels have better access to medical care than people with low socioeconomic status (Baum et al. (1999); Glied and Lleras-Muney (2003); Kawachi et al. (2010); Penson et al. (2001)). How education affects the health of an individual is a question that ongoing research is trying to answer. Theoretically, the role of education in determining individuals' health status was analyzed in Grossman's human capital model (Grossman (1972); Grossman (2000); Grossman and Kaestner (1997)). Empirical evidence demonstrates that education is correlated with health status, but scholars reach different conclusions regarding the causal effect of education on health. These differences may be due to methodological weaknesses or data differences.

There are three major hypotheses that researchers have tried to test empirically. The first hypothesis states that education has a causal effect on health. Research indicates that more-educated

individuals have more health knowledge and higher income to invest in healthy behavior and medical care. Knowledge about the latest treatments, steps to take to be more healthy, benefits of daily exercise, and particular knowledge about how the human body functions all help educated individuals to manage their health better.

The second hypothesis is that health has a causal effect on education. Research suggests that healthier individuals acquire more education because the cost of education investments is lower for individuals with a low health depreciation rate Galama and Van Kippersluis (2010). Unhealthy children have been known to miss more school days; whether this is because their illness is serious or because they are not able to withstand the rigors of studying, they reduce their investments in education.

The last hypothesis is that a third (possibly unobservable) factor affects both education and health. Scholars argue there may be other factors that affect both education and the health of an individual Farrell and Fuchs (1982), Fuchs (1980). Factors like parents' education, time preferences, and genetic factors may affect both health and education of an individual, leading to an observed correlation.

This empirical work tests whether there is a racial disparity in the education-health gradient of adults in the United States. I examine how much of the gradient is due directly to racial disparities in education levels after other explanatory variables in my data have been accounted for and how much is indirectly due to an income effect. I consider both health behavior and health outcomes among minorities (African Americans, Asians, and Hispanics). Health behaviors considered include smoking (SMOKE), auto safety (SBELT), exercise (EXER), and mammograms (MAMMO), while health outcomes include obesity ($BMI \geq 30$), self-reported health status (SRH), hypertension (HYPER), heart disease (HATTACK), and diabetes (DIAB).

Because the first part of my research analyzes the magnitude of the association between education and health, to test for a causal effect of education on health behavior, health outcomes and SRH I utilize a nonparametric re-sampling method. To overcome the limitations that I experience using

the nonparametric method, I used a semi-parametric method. Both methods yield similar results that education affects health behavior directly, health behavior affect SRH, but education indirectly affect SRH. This topic is important to both education and health policy makers. Because racial disparities are observed even after controlling for differences in education, the results show that education is not a great equalizer of racial inequality in the income-health gradient. These findings suggest that there may be better allocations of resources. Knowing the dynamics through which education improves individuals' health will assist in making efficient policy to reduce health disparities and will clarify areas in which the promotion of health awareness is efficient. Individuals and parents would also be better served knowing that their investment in higher levels of education yields both health and non-health returns. This will assist them in correctly analyzing the costs and benefits of education.

3.2 Literature Review

One argument explaining the correlation between education and health suggests that higher levels of education lead individuals to amass knowledge about health and how to produce and allocate resources more efficiently to improve health. To investigate the effect of education on health, many authors have used the mortality rate as a measure of health in their analyses: Adams (2002) used quarter of birth as an instrument for educational attainment and established that the correlation between educational attainment and health is causal. Silles (2009) utilized United Kingdom data and concluded that compulsory school reform has a causal effect on self-reported health (SRH). When Arendt (2005) used Danish school reform as an instrument in his study of the effect of education on self-reported health (SRH) and body mass index (BMI), his findings were inconclusive. Albouy and Lequien (2009) examined the effect of compulsory school reform on mortality in France

and did not find a significant effect. Lager and Torssander (2012) and Fischer et al. (2013) could not empirically claim that education has a causal effect on health in their studies of the effect of compulsory schooling reform on mortality and health outcomes in Sweden, respectively. Gathmann et al. (2015) investigated and compared the effect of nineteen compulsory schooling reforms in thirteen European countries on mortality rates and found varying effects across the countries. Meghir et al. (2012) studied the effect on mortality of increasing the years of compulsory school from 7 to 8 years in Sweden by looking at different causes of death as well as causes of hospitalization. Kemptner et al. (2011) found that compulsory schooling reform has a causal effect on reducing women's BMI and reducing men's work disability in West Germany. Lleras-Muney (2005) used the compulsory school law in the United States and concluded that a one-year increase in education level decreases the 10-year mortality rate by 6.3 percentage points among the White population.

Another measure of health utilized in research is SRH. Some researchers have used health knowledge and SRH, which are subjective data and usually plagued by measurement errors. Groot and Maassen Van Den Brink (2007), using data from the Netherlands, established that there is a positive correlation between education and SRH and that the estimated coefficient is reduced when health outcomes and functional limitations are controlled for. They also checked whether unobserved variables have a causal effect on individuals' education and health but failed to find strong evidence of such relationships. Silles (2009) used compulsory years of schooling as an instrumental variable for education and found that education has a positive causal effect on health (SRH) in the United Kingdom. They concluded that an additional year of education improves the chance of being in good health by 2.6 percentage points. They also established that additional schooling reduces the risk of suffering from long-term illness, activity-limiting illness, and work-preventing illness. Kenkel (1991) investigated the effects of health knowledge and education on health behavior (smoking, drinking, and exercising). They discovered that although schooling increases alcohol consumption among the well-educated, it has a significant negative effect on smoking and

heavy drinking. Schooling's effect on exercise was positive and significant. Arendt (2005) used a Danish data set to analyze how schooling impacts SRH and BMI. For both men and women, more education was associated with better SRH; while education significantly reduces the probability of being obese among women, it has no significant effect on men's BMI.

Instead of using the mortality rate or SRH, other researchers used different measures of health outcomes. Arendt (2008) found that for women, education significantly reduces the probability of being hospitalized, while for men the probability is only significantly related to a few diagnoses. Ayyagari et al. (2011) discovered that with other factors remaining constant, an additional year of schooling decreases the hazard of being diagnosed with diabetes mellitus. They also concluded that people who are Black, Hispanic, or non-White ethnicity are nearly twice as likely to be diagnosed with diabetes than non-Hispanic White people. Seo and Senauer (2011) discovered that when country of birth is considered among U.S. residents, education has a higher beneficial effect on health outcomes for foreign-born residents compared to U.S.-born residents. The health outcomes considered include cardiovascular (systolic and diastolic blood pressure), metabolic (HDL cholesterol, BMI, and glycated hemoglobin), and inflammation health. These results may have been found because healthy individuals are more likely to endure the rigor of migrating to another country. Berger and Leigh (1989) used four different measurements of health outcomes: systolic blood pressure, diastolic blood pressure, self-reported disability, and functional limitations. They found evidence of a causal effect of education on health and discovered a reverse causality between education and disability, arguing that people with poor health invest in fewer years of schooling. They rejected the hypothesis that the correlation between education and health was due to an unobserved third factor. Ding et al. (2009) used genetic markers linked to health outcomes (ADHD, depression and obesity) and smoking as a health behavior to establish a causal effect of health and health behavior on education in adolescence. They found stronger evidence for the effect among females compared to males. They noticed that smoking has a significant negative effect on individuals' educational attainment, while obesity impacted only females' education attainment.

Hartog and Oosterbeek (1998) established that happiness has a parabolic relation with education and that the highest level of happiness is reached when individuals obtain a higher level of secondary schooling.

Cutler and Lleras-Muney (2010) used data for the White U.S. population to explain how individuals' health behavior is affected by their level of education. They also concluded that higher education yields a significant health gradient even after controlling for the impact of household income. My research will use a modified version of their empirical model to explain the differences in the impact of educational attainment on health behavior, and health outcome by race. Education raises the efficiency by which individuals produce health: not only does it assist individuals in recognizing the signs and symptoms of disease (lowering the cost of diagnosis), it also teaches them how to acquire and process information speedily and accurately. It also helps them to adhere to strict treatment regimens and to seek out the latest health innovations.

3.3 Theoretical Model

An extension of the Ehrlich and Chuma (1990) model by Galama and Van Kippersluis (2010) is used as the theoretical basis for the empirical work reported in this chapter. Definitions of the variables used in the theoretical model are provided in Table 3.1. Galama and Van Kippersluis (2010) extended the Ehrlich and Chuma (1990) model to show how level of education influences health behavior, which in turn influences the health stock. According to Galama and Van Kippersluis (2010), the investment in health $I(t)$ can be sorted into curative ($I_m(t)$) or preventative ($I_p(t)$). Likewise, the individual's consumption $Z(t)$ can be unhealthy ($C_u(t)$) or healthy consumption ($C_h(t)$). Galama and Van Kippersluis (2010) argued that investment in curative care can partially offset the biological aging rate (health depreciation, $\delta(t)$), which depletes health capital. Health depreciation

can also be slowed by investing in preventive care.

Table 3.1: Definitions of Theoretical Model Variables

Variable	Definition
T	Length of life
H(t), H_{\min}	Stock of health capital at time t and at death respectively
$\delta(t)$	Rate of Depreciation of H(t)
h(t)	Fraction of healthy time in t; $h = \phi(H(t))$
Z(t)	flow of consumption activities
X(t), c(t)	Market goods and Consumption time inputs in the production of Z(t)
I(t)	Flow of gross investment in H(t)
M(t), m(t)	Medical services and time input in production of I(t)
l(t), s(t)	labor and sick time respectively
E(t)	Stock of education capital
w(t)	Market wage rate; $w(t) = w(E(t))$
P(t), K(t)	Unit prices of M(t) and X(t) respectively
$\pi(t)$, $\psi(t)$	Unit prices (shadow) of I(t) and Z(t) respectively
A(t)	Stock of non human assets
L(t)	Discounted value of future labor income
r, ρ	Market interest rate and time preference rate
β	effort saving technology change
$1/\alpha$	Degree of homogeneity of the production function of I(t)
U(t)	Instantaneous utility of "quality of life"
g(t)	Unit value of health capital
More Variable Definition	
$I_m(t)$	Curative Health investment
$I_p(t)$	Preventative Health investment
$C_h(t)$	Healthy consumption
$C_u(t)$	Unhealthy consumption
$\xi(t)$	Vectors of exogenous functions
O(t)	Job- related health stress
$m_m(t)$, $P_m(t)$, $\tau_{I_m}(t)$	Medical curative treatment consumed, their price and time spent consuming it
$m_p(t)$, $P_p(t)$, $\tau_{I_p}(t)$	Medical preventative treatment consumed, their price and time spent consuming it
$x_h(t)$, $P_{x_h}(t)$, $\tau_{C_{x_h}}(t)$	Medical curative treatment consumed, their price and time spent consuming it
$x_u(t)$, $P_{x_u}(t)$, $\tau_{C_{x_u}}(t)$	Medical preventative treatment consumed, their price and time spent consuming it

source: Ehrlich and Chuma (1990)

$$\delta(t) \equiv \delta[t, C_h(t), C_u(t), I_p(t); \xi(t)] \quad (3.1)$$

where $\xi(t)$ is a vector of exogenous functions. Galama and Van Kippersluis (2010) also made the following assumptions in their model.

$$\frac{\partial U(t)}{\partial H(t)} \geq 0, \quad \frac{\partial H(t)}{\partial I_m(t)} \geq 0 \quad \Rightarrow \quad \frac{\partial U(t)}{\partial I_m(t)} \geq 0 \quad (3.2)$$

The assumptions that curative investment ($I_m(t)$) in health increases an individual's health stock and an increase in health stock increases lifetime utility imply that a curative investment in health increases lifetime utility.

$$\frac{\partial U(t)}{\partial I_p(t)} = 0, \quad \frac{\partial U(t)}{\partial C_h(t)} \geq 0, \quad \text{and} \quad \frac{\partial U(t)}{\partial C_u(t)} \geq 0 \quad (3.3)$$

On the other hand:

$$\frac{\partial \delta(t)}{\partial I_p(t)} < 0, \quad \frac{\partial \delta(t)}{\partial C_h(t)} \leq 0, \quad \text{and} \quad \frac{\partial \delta(t)}{\partial C_u(t)} > 0 \quad (3.4)$$

The above conditions assume that investment consumption (both healthy and unhealthy) increases lifetime utility. Preventative investment ($I_p(t)$) in health has no direct impact on utility. Rather, it decreases the depreciation rate of health stock. Healthy consumption decreases the depreciation of health stock while unhealthy consumption increases it. Many healthy preventative measures do not directly increase an individual's utility, but have a positive effect through their impact on the stock of health.

Galama and Van Kippersluis (2010) show that the same model in Chapter 2, Section 2.3, can be transformed, as seen below. Equation (2.1) becomes

$$LU \equiv \int_0^T e^{-\rho t} U(C_h(t), C_u(t), \phi(H(t))) dt \quad (3.5)$$

while equation (2.2) becomes

$$\dot{H}(t) = I_m(t)^\alpha - \delta(t)H(t), \quad 0 < \alpha < 1 \quad (3.6)$$

Equation (2.3) becomes

$$\dot{A}(t) = rA(t) + w(t)\phi(H(t)) - p_m(t)m_m(t) - p_p(t)m_p(t) - p_{x_h}(t)x_h(t) - p_{x_u}(t)x_u(t), \quad (3.7)$$

with $m_m(t)$, $m_p(t)$, $x_h(t)$ and $x_u(t)$ being curative care (treatment for a particular illness), preventative care (exercise, auto safety), healthy consumption and unhealthy consumption (smoking, heavy drinking) and their respective prices are $p_m(t)$, $p_p(t)$, $p_{x_h}(t)$ and $p_{x_u}(t)$. The time spent on consuming each of these goods are $\tau_{I_m}(t)$, $\tau_{I_p}(t)$, $\tau_{C_{x_h}}(t)$ and $\tau_{C_{x_u}}(t)$, respectively, with $l(t)$ being the time spent working and $s(t)$ the sick time.

Thus equation (2.4) becomes

$$1 = l(t) + \tau_{I_m}(t) + \tau_{I_p}(t) + \tau_{C_{x_h}}(t) + \tau_{C_{x_u}}(t) + s(t) \quad (3.8)$$

and therefore we have

$$I = f(I_m(t), I_p(t), \tau_{I_m}(t), \tau_{I_p}(t) : E(t))$$

Optimal investments are obtained at the point where marginal benefit equals marginal cost by maximizing life cycle utility subject to life cycle budget and time constraints, as was done in Ehrlich and Chuma's (1990) human capital model.

The empirical analysis in this essay follows the approach of human capital investment as described in Galama and Van Kippersluis (2010) by considering the direct effect of education on health and the indirect effect of education that operates through its impact on health behaviors. In this context, I estimate the following three effects:

(E1) Investments in education reduces unhealthy behaviors (smoking) and increases healthy behaviors (seatbelt use, and exercising):

$$\frac{\partial I_p(t)}{\partial E(t)} \geq 0$$

(E2) Preventive behaviors (exercising, seatbelt use) increase an individual's health stock over time, while unhealthy behaviors (smoking) decreases it:

$$\frac{\partial H(t)}{\partial I_p(t)} \geq 0$$

(E3) More education improves health outcomes:

$$\frac{\partial H(t)}{\partial E(t)} \geq 0$$

Because healthy behaviors lead to better health, the effect of education on health behavior results in an indirect effect on health which is a component of the total effect:

$$\frac{dH(t)}{dE(t)} = \underbrace{\frac{\partial H(t)}{\partial I_p(t)} \frac{\partial I_p(t)}{\partial E(t)}}_{\text{Indirect}} + \underbrace{\frac{\partial H(t)}{\partial E(t)}}_{\text{Direct}}$$

I estimate the magnitudes of the direct and indirect effects of education on health while controlling for income and other economic factors and test whether these effects vary by race and ethnicity.

3.4 Data

The data set utilized for this analysis is the Medical Expenditure Panel Survey (MEPS), which is a nationally representative survey of the civilian non-institutionalized population administered by the Agency for Healthcare Research and Quality (AHRQ). The MEPS sample is drawn from a subset of the households who participate in the National Health Interview Survey (NHIS). Individuals enrolled in MEPS are followed for 2 years, although the AHRQ releases sampling weights that allow each year to be treated as an independent cross-section. I used MEPS data for the years 2001-2011.

MEPS includes data on participants' health services utilization and corresponding medical costs. The data also include sociodemographic characteristics, such as age, race, ethnicity, gender, income (measured as poverty level), insurance status, education, and self-reported BMI. The analysis sample is restricted to African-Americans (Blacks), Asians, Hispanics, and Non-Hispanic Whites (White-NH) 25 years of age and older. Variables used are from the consolidated year data files.

Table 3.2 provides definitions of the empirical variables. Education (EDUC) is coded from 0-17 years of schooling. Health behaviors (HB) are all binary variables: SMOKE=1 if the individual currently smokes, SBELT=1 if the individual always wears the seat belt when driving, EXER=1 if the individual vigorously exercises at least 3 times a week, and MAMMO=1 if the individual had a mammogram in the past 2 years (for women 40 years and above). All defined variables are zero otherwise. While there was little choice for a health status measure in the IPUMS data in Chapter

2, the MEPS data offers several measures of health outcomes: For health outcomes (HO), BMI=1 if $BMI \geq 30$, HYPER=1 if the individual reports having been diagnosed with hypertension, HATTACK=1 if he or she has been diagnosed as having experienced a heart attack, and DIAB=1 if the individual reports a diagnosis of diabetes. All variables are zero otherwise.

SRH is a categorical variable with 5 categories: excellent, very good, good, fair, and poor. I modified the categories to 4 by merging fair and poor because both had fewer observations. The measure of income used in the analysis is a categorical representation of the household income as a percent of the poverty level, and health insurance has three categories: uninsured, private, and public. There are three categories of income: high, middle and low income. The four categories for REGION are dummy variables representing the Northeast, South, Midwest and West. The other explanatory variables are also binary: CLIMIT= 1 if the individual reports cognitive limitation, RATTITUDE= 1 if the individual is likely to take risk, MARRY=1 if the individual is married, and MSA= 1 if the individual resides in an urban area. All equal zero otherwise.

The summary statistics in Table 3.3 show the averages of the continuous variables as a total and by race/ethnicity. The average age of all the individuals in the data is 49 years with 12 years of schooling on average. By race, Whites have the highest average age of 51 years and Hispanics have the lowest average age of 45 years. Asians and Whites have the highest average schooling of 13 years.

Table 3.2: Definitions of Variables used in the Empirical Analysis

	Variable	Definition
HB		Health Behaviors
	SMOKE=1	If individual currently smoke, 0 otherwise
	NSMOKE=1	If individual currently does not smoke, 0 otherwise
	SBELT=1	If individual always wears a seat belt, 0 otherwise
	EXER= 1	If individual exercise at least 3 times a week, 0 otherwise
	MAMMO=1	If a woman (age ≥ 40) had a mammogram in the past 2 years, 0 otherwise
HO		Health Outcomes
	BMI=1	If individual's BMI ≥ 30 , 0 otherwise
	NOBESE=1	If individual's BMI < 30 , 0 otherwise
	HYPERT=1	If individual is diagnosed with high blood pressure, 0 otherwise
	HATTACK=1	If individual is diagnosed with heart attack, 0 otherwise
	DIAB=1	If individual is diagnosed with type 2 diabetes, 0 otherwise
	NDIAB=1	If individual is not diagnosed with type 2 diabetes, 0 otherwise
SRH		Self reported health categories
	SRH=1	If individual reports excellent health
	SRH=2	If individual reports very good health
	SRH=3	If individual reports good health
	SRH=4	If individual reports fair/poor health
	CLIMIT=1	If individual has cognitive limitation, 0 otherwise
	RATTITUDE=1	If individual is likely to take risk, 0 otherwise
	MARRY=1	If individual is married, 0 otherwise
	MSA=1	If individual reside in urban area, 0 otherwise
	INCOMEL	Individual's household income level: Low, Medium and High
	INSCOV	Individual's insurance coverage status: Private, Public or Uninsured
REGION	Individual's region of residence: Northwest, Midwest, South and West	
	FEMALE=1	If individual is female, 0 otherwise
RACE/ETHNICITY		Respondent's race or ethnicity
	WHITE	Individual is of non Hispanic white race
	BLACK	Individual is of African descend
	ASIAN	Individual is of Asian descend
	HISPANIC	Individual is of Hispanic ethnicity
	EDUC	Individual's year of schooling
RACE*EDUC		Interaction between RACE and EDUC
	BEDUC	Interaction of dummy for Black and EDUC
	AEDUC	Interaction of dummy for Asian and EDUC
	HEDUC	Interaction of dummy for Hispanic and EDUC
AGE		Respondent's age group
	AGE1	25-44years old
	AGE2	45-64years old
	AGE3	65-85years old

The Hispanic population has the lowest average schooling of 10 years. Table 3.4 reports percentages by race for all categorical variables. Table 3.4 reveals that forty percent of all respondents reside in the South, but roughly 60% of Blacks reside in the South. Sixty-one percent of all respondents are married, but only 38% of Blacks are married. Thirty-four percent of all respondents have low income, while 53% of Hispanics and 48% of Blacks have low income. Fifteen percent of all respondents are uninsured, but 33% of Hispanics are uninsured. The MEPS oversamples minorities to ensure collection of sufficient subsample observations needed for analysis.

Table 3.3: Descriptive Statistics by Race/Ethnicity-I

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	100404	49.83	15.42	25	85
Black	17020	48.63	14.98		
Asian	5883	47.35	14.83		
Hispanic	19044	45.18	14.12		
White	58457	51.94	15.60		
EDUC	100404	12.72	3.22	0	17
Black	17020	12.56	2.64		
Asian	5883	13.89	3.33		
Hispanic	19044	10.28	4.12		
White	58457	13.44	2.56		

Table 3.4: Descriptive Statistics by Races-II

Variable	N	%	N	%	N	%	N	%	N	%
Race	All Race		Black		Asian		Hispanic		White	
	100,404	100	17,020	16.95	5,883	5.86	19,044	18.97	58,457	58.22
SRH										
Excellent	22,132	22.04	3074	18.06	1437	24.43	3702	19.44	13919	23.81
Very good	32,507	32.38	4917	28.89	2039	34.66	5468	28.71	20083	34.36
Good	29,991	29.87	5553	32.63	1766	30.02	6449	33.86	16223	27.75
Fair/poor	15,774	15.71	3476	20.42	641	10.9	3425	17.98	8232	14.08
Sex										
Female	55,749	55.52	10476	61.55	3185	54.14	10454	54.89	31634	54.11
REGION										
Northeast	15,036	14.98	2381	13.99	913	15.52	2139	11.23	9603	16.43
Midwest	21,258	21.17	2979	17.5	665	11.3	1374	7.21	16240	27.78
South	40,226	40.06	10242	60.18	1605	27.28	7388	38.79	20991	35.91
West	23,884	23.79	1418	8.33	2700	45.89	8143	42.76	11623	19.88
INSCOV										
Private	66,710	66.44	9670	56.82	4346	73.87	8549	44.89	44124	75.52
Public	18,494	18.42	4628	27.19	877	14.91	4158	21.83	8831	15.11
Uninsured	15,200	15.14	2722	15.99	660	11.22	6337	33.28	5481	9.38
Urban (MSA)										
Yes	82,325	81.99	14528	85.36	5594	95.09	17313	90.91	44890	76.79
MARRY										
Yes	61,081	60.84	6631	38.96	4041	68.69	12254	64.35	38155	65.27
INCOME-L										
Low income	34,490	34.35	8318	48.87	1486	25.26	10185	53.48	14501	24.81
Middle income	30,333	30.21	5079	29.84	1682	28.59	5781	30.36	17791	30.43
High income	35,581	35.44	3623	21.29	2715	46.15	3078	16.16	26165	44.76
CLIMIT										
Yes	4,994	4.97	1114	6.55	197	3.35	710	3.73	2973	5.09
SMOKE										
Yes	19,861	19.78	4064	23.88	684	11.64	2515	13.21	12597	21.55
SBELT										
Yes	86,812	86.12	14283	83.92	5473	93.03	17748	93.19	48959	83.75
RATTITUDE										
Yes	23,509	23.41	3845	22.59	1252	21.28	5269	27.67	13143	22.48
EXER										
Yes	54,614	54.39	8482	49.84	3216	54.67	9162	48.11	33754	57.74
HATTACK										
Yes	3,805	3.79	592	3.48	121	2.06	373	1.96	2719	4.65
DIAB										
Yes	10,407	10.37	2462	14.47	520	8.84	2134	11.21	5291	9.05
HYPER										
Yes	34,035	33.9	7673	45.08	1631	27.72	4697	24.66	20034	34.27
BMI (>30)										
Yes	31,640	31.51	7274	42.74	773	13.14	6568	34.49	17025	29.12
MAMMO(Female age>40)										
Yes	29,158	79.02	5,318	81.14	1,417	78.2	4,253	74.56	18,170	79.59

3.5 Empirical Model

This section does not attempt to estimate a causal effect of education on health. Instead, I have three goals: (1) I show the decomposition of the total education gradient into direct and indirect effects for the control group (White). (2) I estimate the magnitude of the education- health gradient while controlling for other explanatory variables. (3) I test if there are racial/ethnic disparities in the education-health gradient. I am testing the null hypothesis that there is no racial/ethnic disparities in the education-health gradient ($\eta_j = 0$ where $j=1...5$ corresponds to equations (3.9) through (3.13)). Rejection of the null hypothesis implies that racial or ethnic disparities exist.

The health production model used in this analysis is a modification of the model proposed by Cutler and Lleras-Muney (2010):

(E1) Effect of Education on Health Behavior:

$$\begin{aligned} HB_{it} = & \theta_1 + \pi_1 EDUC_i + \phi_1 RACE_i + \eta_1 (EDUC_i * RACE_i) + \kappa_1 X_{it} \\ & + \lambda_1 INCOMEL_{it} + \omega_1 Z_{it} + \varepsilon_{1it} \end{aligned} \quad (3.9)$$

HB_{it} represent $SMOKE_{it}$, $SBELT_{it}$, and $EXER_{it}$. Equation (3.9) provides estimates of effect (E1) described in section 3.3: If the estimated value of η_1 differs significantly from zero, I can conclude that the effect of education differs by race or ethnicity.

(E3) Effect of Education on Health Outcomes and Self-Reported Health:

$$\begin{aligned} HO_{it} = & \theta_2 + \pi_2 EDUC_i + \phi_2 RACE_i + \eta_2 (EDUC_i * RACE_i) + \kappa_2 X_{it} \\ & + \lambda_2 INCOMEL_{it} + \omega_2 Z_{it} + \varepsilon_{2it} \end{aligned} \quad (3.10)$$

$$\begin{aligned} SRH_{it} = & \theta_3 + \pi_3 EDUC_i + \phi_3 RACE_i + \eta_3 (EDUC_i * RACE_i) + \kappa_3 X_{it} \\ & + \lambda_3 INCOMEL_{it} + \omega_3 Z_{it} + \varepsilon_{3it} \end{aligned} \quad (3.11)$$

HO_{it} represents BMI_{it} , $DIAB_{it}$, $HYPER_{it}$, and $HATTACK_{it}$. Equations (3.10) and (3.11) provide estimates of effect (E3) described in section 3.3: If the estimated value of η_2 and η_3 differ significantly from zero, the conclusion is that the effect of education differs by race or ethnicity.

(E2) Effect of Health Behaviors on Health Outcomes and Self-Reported Health:

$$HO_{it} = \theta_4 + \pi_4 EDUC_i + \phi_4 RACE_i + \eta_4 (EDUC_i * RACE_i) + \kappa_4 X_{it} + \lambda_4 INCOMEL_{it} + \omega_4 Z_{it} + \psi_4 HB_{it} + \varepsilon_{4it}. \quad (3.12)$$

$$SRH_{it} = \theta_5 + \pi_5 EDUC_i + \phi_5 RACE_i + \eta_5 (EDUC_i * RACE_i) + \kappa_5 X_{it} + \lambda_5 INCOMEL_{it} + \omega_5 Z_{it} + \psi_5 HB_{it} + \varepsilon_{5it}. \quad (3.13)$$

Equations (3.12) and (3.13) provide estimates of effect (E2) described in section 3.3. If the estimated value of η_4 and η_5 differ significantly from zero, the conclusion is that the effect of education differs by race or ethnicity.

In equations (3.9) through (3.13), $EDUC_i$ is education level (in years), and X_{it} is a vector of individual characteristics (age dummies and gender). The reference group in the racial disparity analyses is White-NH. Household income ($INCOMEL$), is categorized as high, middle, or low income and expressed as percentage of poverty line. Z_{it} is a vector of explanatory variables ($MARRY$, $CLIMIT$, $INSCOV$, $RATTITUDE$, MSA , $REGION$ and year dummies) in year t that influences the individual's decision to investment in health stock.

Omitted variable bias may result due to lack of data for controls, such as genetic factors that predispose individuals to some health outcomes, and individuals' ability which may affect educational attainment. Omission of such variables may lead to overestimation of the education-health gradient because the effects due to the omitted variables may be attributed to education.

In equations (3.9) to (3.11), I estimate the total effect of education on health behavior, health outcomes, and SRH, respectively by π_1 , π_2 , and π_3 . In equations (3.12) and (3.13), π_4 and π_5 measure the direct impact of education on health outcomes and SRH, while ψ_4 and ψ_5 in both

equations multiplied by the corresponding partial effect in equation (3.9), π_1 , yields the indirect effect of education on health outcomes and SRH. For example, for the health behavior SMOKE, $\frac{\partial HO}{\partial SMOKE} \frac{\partial SMOKE}{\partial EDUC}$ and $\frac{\partial SRH}{\partial SMOKE} \frac{\partial SMOKE}{\partial EDUC}$ are the indirect effects of education on the health outcomes, and SRH, respectively. Since the total effect of the gradient of education on health is the sum of the direct and indirect effects, the direct effect can be calculated as the total effect minus the indirect effect

To show variations in the education health gradient after controlling for income and other explanatory variables, each of equations (3.9), (3.12), and (3.13) will be estimated in the following three specifications: Baseline, +Income, and +Control, respectively:

$$\begin{aligned}
 &= \beta_0 + \beta_1 EDUC_i + \beta_2 RACE_i + \beta_3 (EDUC_i * RACE_i) + \beta_4 X_{it} + \eta_{it} \\
 &= \gamma_0 + \gamma_1 EDUC_i + \gamma_2 RACE_i + \gamma_3 (EDUC_i * RACE_i) + \gamma_4 X_{it} + \gamma_5 INCOMEL_{it} + v_{it} \\
 &= \alpha_0 + \alpha_1 EDUC_i + \alpha_2 RACE_i + \alpha_3 (EDUC_i * RACE_i) + \alpha_4 X_{it} + \alpha_5 INCOMEL_{it} + \alpha_6 Z_{it} + \epsilon_{it}
 \end{aligned}
 \tag{3.14}$$

The marginal effects from the three specifications for each of the equations (3.9), (3.10), (3.11), (3.12) and (3.13) are reported in the following section showing the percentage change in the gradient. This helps us to better understand the variation in the magnitude of education gradient on health behavior and health outcomes. For each health measure with a significant education coefficient, the percent decline in the coefficient can be calculated and compared to see what percentage is explained specifically by education. The percentage change in gradient for income alone, and for income plus other controls, are calculated as $(1 - \frac{\alpha_1}{\beta_1})$ and $(1 - \frac{\gamma_1}{\beta_1})$, respectively for Whites, while they are $(1 - \frac{(\alpha_1 + \alpha_3)}{(\beta_1 + \beta_3)})$ and $(1 - \frac{(\gamma_1 + \gamma_3)}{(\beta_1 + \beta_3)})$, respectively for other racial groups.

Health measures that are binary are analyzed using a probit model, and the marginal effect results can be easily compared across outcomes. The analysis of the education-SRH gradient is performed using an ordered probit model because SRH is an ordered categorical variable.

3.6 Results

3.6.1 Effect of Education on Health Behavior and Health Outcomes

The results tables show the gradient variations when measure of household income (a measure of the poverty level) is added to the baseline regression as well as when other controls are included. As expected, the education gradient on health behavior and health outcomes changes when income and other controls are added to the regression. This reflects the fact that there are other variables associated with the health of individuals when these variables are omitted and the education gradient is thus overestimated, but when these variables are included the effect of education is still substantial. The other control variables included are MARRY, MSA, REGION, RATTITUDE, CLIMIT, INSCOV, and year dummy variables.

Tables 3.5 and 3.6 both show the associations between higher income and other control variables with the education-health behavior gradient and education-health outcome gradient, respectively. Column 6 in both tables shows the percentage decline in the education gradient related to income, while column 10 shows the percentage decline in the education gradient related to the other control variables.¹

The results of the three specifications of the regression analysis relating education and health behavior are shown in Table 3.5. There is significant racial disparity among the education gradient on smoking and seatbelt-wearing behaviors. In the full specification, the White-NH population enjoys the biggest gradient (2.9 percentage points less likely to smoke and 1.1 percentage points more likely to use a seatbelt) than other racial/ethnic groups, while Hispanics have the smallest gradient (0.07 percentage points more likely to smoke and 0.25 percentage points less likely to use a seat-

¹Table 3.5 summarizes the results of probit regressions and marginal effects in Tables B.1 and B.2 in Appendix B, and Table 3.6 summarizes Tables B.3 and B.4.

belt) than other racial/ethnic groups. As expected, the education gradient is negatively associated with smoking behavior, while it is positively related to seatbelt use (except for Hispanics).

Table 3.5: Variation in Education - Health Behavior Gradient

Health Behaviours	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE									
White	-0.0386***	-0.0386	-0.0314***	-0.0314	18.65	-0.0285***	-0.0285	26.17	7.51
Black	0.0145***	-0.0241	0.0139***	-0.0175	27.39	0.0139***	-0.0146	39.42	12.03
Asian	0.0175***	-0.0211	0.0157***	-0.0157	25.59	0.0164***	-0.0121	42.65	17.06
Hispanic	0.0352***	-0.0034	0.0317***	0.0003	108.82	0.0292***	0.0007	120.59	11.76
SBELT									
White	0.0162***	0.0162	0.01412***	0.0141	12.84	0.0110***	0.0110	32.10	19.26
Black	-0.00795***	0.0083	-0.00764***	0.0065	21.70	-0.00725***	0.0038	54.55	32.85
Asian	-0.00171	0.0162	-0.00116	0.0141	12.84	-0.00327	0.0110	32.10	19.26
Hispanic	-0.01743***	-0.0012	-0.0164***	-0.0023	-85.37	-0.01349***	-0.0025	-102.44	-17.07
EXER									
White	0.0195***	0.0195	0.0151***	0.0151	22.56	0.0123***	0.0123	37.08	14.51
Black	0.0027	0.0195	0.0024	0.0151	22.56	0.0011	0.0123	37.08	14.51
Asian	-0.0101***	0.0094	-0.0091***	0.0060	36.55	-0.0092***	0.0031	67.27	30.72
Hispanic	-0.0063***	0.0132	-0.0045***	0.0106	20.03	-0.0022	0.0123	7.26	-12.77
MAMMO									
White	0.0240***	0.0240	0.0154***	0.0154	36.03	0.0124***	0.0124	48.35	12.33
Black	-0.0077**	0.0163	-0.0062*	0.0091	44.12	-0.0066**	0.0058	64.63	20.50
Asian	-0.0060	0.0240	-0.0031	0.0154	36.03	-0.0011	0.0124	48.35	12.33
Hispanic	-0.0110***	0.0130	-0.0061**	0.0093	28.48	-0.0057**	0.0067	48.65	20.17

Table 3.6: Variation in Education - Health Outcome Gradient

Health Outcomes	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
BMI									
White	-0.0198***	-0.0198	-0.0172***	-0.0172	13.13	-0.0172***	-0.0172	13.13	0.00
Black	0.0186***	-0.0012	0.0183***	0.0011	191.67	0.0182***	0.0010	183.33	-8.33
Asian	0.00517*	-0.0146	0.00459	-0.0126	13.81	0.0129***	-0.0043	70.61	56.80
Hispanic	0.0172***	-0.0026	0.0159***	-0.0013	50.00	0.0150***	-0.0022	15.38	-34.62
HYPER									
White	-0.0127***	-0.0127	-0.0103***	-0.0103	18.90	-0.0096***	-0.0096	24.33	5.43
Black	0.0059**	-0.0065	0.0058**	-0.0045	30.77	0.0058**	-0.0038	41.08	10.31
Asian	0.0074***	-0.0053	0.00678**	-0.0035	33.71	0.0085***	-0.0011	79.28	45.57
Hispanic	0.0123***	-0.0004	0.0112***	0.0009	325.00	0.0095***	-0.0001	82.50	-242.50
HATAACK									
White	-0.0030***	-0.0030	-0.0020***	-0.0020	34.11	-0.0017***	-0.0017	44.15	10.03
Black	0.0026***	-0.0004	0.0025***	0.0006	257.14	0.0026***	0.0010	374.29	117.14
Asian	0.0020*	-0.0010	0.0017	-0.0020	-107.37	0.0022*	0.0005	153.68	261.05
Hispanic	0.0033***	0.0003	0.0028***	0.0009	-193.10	0.0027***	0.0010	-237.93	-44.83
DIAB									
White	-0.0086***	-0.0086	-0.0069***	-0.0069	19.49	-0.0061***	-0.0061	29.00	9.51
Black	0.0052***	-0.0034	0.0051***	-0.0018	47.37	0.0054***	-0.0007	80.12	32.75
Asian	0.0044**	-0.0042	0.0039**	-0.0030	28.30	0.0043**	-0.0018	57.31	29.01
Hispanic	0.0056***	-0.0031	0.0048***	-0.0021	30.82	0.0040***	-0.0021	30.49	-0.33

This means that education is associated with a decrease in the probability of smoking behavior and an increase in the probability of seatbelt-wearing behavior more among the White-NH population than among the Black, Asian, or Hispanic populations.

The results for the health outcomes in Table 3.6 indicate that there is racial disparity in the education gradient for the probability of being obese, hypertensive, having a heart attack, and being diabetic among the four groups. In the full specification, for White-NH a year of education is associated with a decrease in the probability of all the health outcomes. For Black, Asian, and Hispanic individuals, education is associated with a decrease in the probability of being hypertensive, but is positively related to the probability of having a heart attack. Education is associated with a decrease in the probability of being diabetic for all and with the probability of being obese for all (except Black) individuals. In column 9 of the table, we see that the education-BMI gradient is offset by income level for the Black population. Likewise, the education-HATTACK gradient is offset by income level for Black and Asian populations.

Table 3.7 expresses the correlation between education and SRH by race. It also shows that the education gradient on SRH declines when income and other control variables are added to the probit regression, thereby revealing the direct relationship of education with SRH. As shown in Table 3.7, the probability of reporting excellent and very good health is positively related to education for all four races. The probability of declaring good or fair/poor health is negatively related to years of education.

Table 3.8 shows the correlation between health behaviors and health outcomes by race. It shows that there is racial disparity in the gradient in all three specifications. Level of education, exercising, and seatbelt use are all negatively related to the probability of health outcomes, as expected, and smoking is positively related to the probability of having a heart attack. The percentage decline in the health behavior-health outcome gradient is roughly 30%, so the association between health behaviors and health outcomes is significant.

Table 3.7: Variation in Education - Self Reported Health Gradient

SRH	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
Excellent									
White	0.0307***	0.0307	0.0230***	0.0230	25.23	0.0195***	0.0195	36.56	11.34
Black	-0.0100***	0.0207	-0.0100***	0.0129	37.72	-0.0118***	0.0077	62.85	25.13
Asian	-0.0161***	0.0146	-0.0144***	0.0086	41.31	-0.0152***	0.0043	70.66	29.36
Hispanic	-0.0169***	0.0138	-0.0136***	0.0093	32.22	-0.0111***	0.0084	38.97	6.76
Very good									
White	0.0103***	0.0103	0.0077***	0.0077	25.14	0.0061***	0.0061	41.11	15.97
Black	-0.0033***	0.0070	-0.0034***	0.0043	37.64	-0.0037***	0.0024	65.52	27.88
Asian	-0.0054***	0.0049	-0.0048***	0.0029	41.23	-0.0047***	0.0013	72.76	31.53
Hispanic	-0.0057***	0.0046	-0.0046***	0.0031	32.14	-0.0034***	0.0026	43.34	11.20
Good									
White	-0.0163***	-0.0163	-0.0122***	-0.0122	25.35	-0.0107***	-0.0107	34.32	8.97
Black	0.0053***	-0.0110	0.0053***	-0.0068	37.83	0.0065***	-0.0172	-56.05	-93.87
Asian	0.0085***	-0.0078	0.0076***	-0.0045	41.41	0.0083***	-0.0024	69.63	28.22
Hispanic	0.0090***	-0.0073	0.0072***	-0.0049	32.34	0.0061***	-0.0046	36.82	4.48
Fair/Poor									
White	-0.0247***	-0.0247	-0.0185***	-0.0185	25.11	-0.0149***	-0.0148	39.94	14.83
Black	0.0080***	-0.0167	0.0081***	-0.0104	37.63	0.0090***	-0.0059	64.84	27.21
Asian	0.0129***	-0.0118	0.0116***	-0.0069	41.23	0.0116***	-0.0033	72.23	31.01
Hispanic	0.0136***	-0.0111	0.0110***	-0.0075	32.12	0.0084***	-0.0064	42.23	10.11

Table 3.8: Variation in Health Behaviors - Health Outcomes Gradient

SRH	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
BMI									
yrsschl	-0.0198***	-0.0198	-0.0172***	-0.0172	13.13	-0.0172***	-0.0172	13.13	0.00
Smoke	-0.0723***	-0.0723	-0.0769***	-0.0769	-6.36	-0.0789***	-0.0789	-9.13	-2.77
Seatbelt	-0.0821***	-0.0821	-0.0806***	-0.0806	1.83	-0.0792***	-0.0792	3.53	1.71
Exercise	-0.0117***	-0.0117	-0.0115***	-0.0115	1.71	-0.0114***	-0.0114	2.56	0.85
HYPER									
yrsschl	-0.0127***	-0.0127	-0.0103***	-0.0103	18.90	-0.0096***	-0.0096	24.41	5.51
Smoke	-0.0099*	-0.0099	-0.0146**	-0.0146	-47.47	-0.0169**	-0.0169	-70.71	-23.23
Seatbelt	-0.0199***	-0.0199	-0.0184***	-0.0184	7.54	-0.0220**	-0.0220	-10.55	-18.09
Exercise	-0.0618***	-0.0618	-0.0600***	-0.0600	2.91	-0.0534**	-0.0534	13.59	10.68
HATTACK									
yrsschl	-0.0030***	-0.0030	-0.0020***	-0.0020	33.33	-0.0017***	-0.0017	43.33	10.00
Smoke	0.0158***	0.0158	0.0136***	0.0136	13.92	0.0125***	0.0125	20.89	6.96
Seatbelt	-0.0068***	-0.0068	-0.0063***	-0.0063	7.35	-0.0059**	-0.0059	13.24	5.88
Exercise	-0.0152***	-0.0152	-0.0141***	-0.0141	7.24	-0.0120***	-0.0120	21.05	13.82
DIAB									
yrsschl	-0.0086***	-0.0086	-0.0069***	-0.0069	19.77	-0.0061***	-0.0061	29.07	9.30
Smoke	-0.0158***	-0.0158	-0.0193***	-0.0193	-22.15	-0.0202**	-0.0202	-27.85	-5.70
Seatbelt	-0.0164***	-0.0164	-0.0153***	-0.0153	6.71	-0.0165***	-0.0165	-0.61	-7.32
Exercise	-0.0412***	-0.0412	-0.0396***	-0.0396	3.88	-0.0342***	-0.0342	16.99	13.11

As shown in Table 3.9, in the full specification, all three health behaviors are significantly associated with SRH. The probability of reporting excellent or very good health is related with more schooling (1-1.40%), for those who always wear a seatbelt (2-3%), and for those who exercise regularly (5-7%), but it is unrelated for current smokers (4-5%). These behaviors have an opposite relationship with the probability of declaring only good or fair/poor health. These results indicate that among these three behaviors, smoking and exercising habits have a large, opposite, and almost equal percentage point correlation with the probability of the outcomes. Exercising seem to have the largest positive association with the probability of reporting an excellent SRH of all behaviors considered. This is consistent with the theory that the biological aging rate (health depreciation) can be slowed down by investing in preventive health behaviors. This is why both health care providers and health policy makers recommend that people follow active lifestyles. Table 3.9 also shows that even after considering the association of other income and other control variables along with health behaviors, education is still significantly related to SRH, as shown in second to last column (less than 50% decline overall). The Chow test indicating a statistically significant difference is reported in Appendix B, Table B.6.

This pattern is observed for all three models, which confirms that education is significantly and positively associated with SRH and that racial disparities exist in the education and SRH relationship. An additional year of schooling is associated with the probability of reporting excellent health for a White person by 1.95 percentage points, 0.77 percentage points for a Black person, 0.43 percentage points for an Asian person, and 0.84 percentage points for a Hispanic person. Asians experience the weakest education-SRH relationship among the minority groups, although increasing education is associated with reduction in the probability of declaring good health or fair/poor health for all races and ethnicities. The second to last column in Table 3.9 shows that the education-SRH relation is not completely offset, but it significantly decline for Black and Asian populations specifically.

Table 3.9: Variation in Health Behaviors - Self Reported Health Gradient

SRH	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
Excellent									
yrsschl	0.0247***	0.0247	0.0186157***	0.0186	24.53	0.0160***	0.0160	34.95	10.42
Smoke	-0.0758***	-0.0758	-0.0631***	-0.0631	16.79	-0.0568***	-0.0568	25.03	8.23
Seatbelt	0.0399***	0.0399	0.0368***	0.0368	7.74	0.0350***	0.0350	12.45	4.71
Exercise	0.1093***	0.1093	0.1047***	0.1047	4.26	0.0952***	0.0952	12.89	8.63
Very good									
yrsschl	0.0082***	0.0082	0.0062***	0.0062	24.58	0.0050***	0.0050	39.66	15.07
Smoke	-0.0253***	-0.0253	-0.0210***	-0.0210	16.85	-0.0176***	-0.0176	30.46	13.60
Seatbelt	0.0133***	0.0133	0.0123***	0.0123	7.80	0.0108***	0.0108	18.79	10.98
Exercise	0.0365***	0.0365	0.0349***	0.0349	4.33	0.0295***	0.0295	19.20	14.87
Good									
yrsschl	-0.0131***	-0.0131	-0.0098425***	-0.0098	24.60	-0.0087951***	-0.0088	32.63	8.02
Smoke	0.0401***	0.0401	0.0333359***	0.0333	16.88	0.0311391***	0.0311	22.35	5.48
Seatbelt	-0.0211***	-0.0211	-0.0194729***	-0.0195	7.82	-0.0191567***	-0.0192	9.32	1.50
Exercise	-0.0579***	-0.0579	-0.0553477***	-0.0553	4.36	-0.0522061***	-0.0522	9.79	5.43
Fair/Poor									
yrsschl	-0.0198***	-0.0198	-0.0150***	-0.0150	24.50	-0.0122***	-0.0122	38.43	13.92
Smoke	0.0610***	0.0610	0.0507***	0.0507	16.77	0.0433***	0.0433	29.04	12.27
Seatbelt	-0.0321***	-0.0321	-0.0296***	-0.0296	7.70	-0.0266***	-0.0266	17.13	9.43
Exercise	-0.0880***	-0.0880	-0.0842***	-0.0842	4.23	-0.0725***	-0.0725	17.55	13.32

Tables 3.10a and 3.10b show the results of the path analysis for all the race and ethnic groups. The tables contains the results from equations (3.9) to (3.13) above reported in Tables 3.5 to 3.9. The second column in each of Tables 3.10a and 3.10b shows the total effects of education on health outcomes (BMI, HYPERTENSION, HATTACK and DIAB). The third column contains the indirect effects ($\pi_1 * \psi_4$) for white and $((\pi_1 + \eta_1) * \psi_4)$ for all the minority groups. Likewise, Tables 3.11a and 3.11b show the path analysis for education-SRH gradient. The second column in the Tables shows the total effects of education on SRH (Excellent, Very Good, Bad and Fair/poor while the third column contains the indirect effects ($\pi_1 * \psi_5$) for white and $((\pi_1 + \eta_1) * \psi_5)$ for all the minority groups. The last column of the Tables show the calculation of the direct effect obtained by subtracting the indirect effects from the total effect. The estimates of the direct effect of education indicate that there is a decline in the probability of the health outcomes occurring associated with higher educational attainment. For SRH, the direct effect of education on SRH indicates there is an increase in the probability of declaring excellent and very good health associated with an increase in education

among all racial and ethnic groups, while there is a decrease in the probability of declaring good and poor health associated with greater education, other things equal.

Table 3.10: Direct and Indirect Components of the Education-Health Gradient for Health Outcomes

	Total Effects	Indirect Effects	Direct Effects
(a)			
Body Mass Index			
White	-0.0172		
Exercise		-0.00014	-0.01706
Seatbelt Use		-0.00087	-0.01633
Smoke		0.00225	-0.01945
Black	0.001		
Exercise		-0.00014	0.00114
Seatbelt Use		-0.00030	0.00130
Smoke		0.00115	-0.00015
Asian	-0.0043		
Exercise		-0.00004	-0.00426
Seatbelt Use		-0.00087	-0.00343
Smoke		0.00095	-0.00525
Hispanic	-0.0022		
Exercise		-0.00014	-0.00206
Seatbelt Use		0.00020	-0.00240
Smoke		-0.00006	-0.00214
Hypertension			
White	-0.0096		
Exercise		-0.00066	-0.00894
Seatbelt Use		-0.00024	-0.00936
Smoke		0.00048	-0.01008
Black	-0.0038		
Exercise		-0.00066	-0.00314
Seatbelt Use		-0.00008	-0.00372
Smoke		0.00025	-0.00405
Asian	-0.0011		
Exercise		-0.00017	-0.00093
Seatbelt Use		-0.00024	-0.00086
Smoke		0.00020	-0.00130
Hispanic	-0.0001		
Exercise		-0.00066	0.00056
Seatbelt Use		0.00006	-0.00016
Smoke		-0.00001	-0.00009
(b)			
Heart Attack			
White	-0.0017		
Exercise		-0.00015	-0.00155
Seatbelt Use		-0.00006	-0.00164
Smoke		-0.00036	-0.00134
Black	0.001		
Exercise		-0.00015	0.00115
Seatbelt Use		-0.00002	0.00102
Smoke		-0.00018	0.00118
Asian	0.0005		
Exercise		-0.00004	0.00054
Seatbelt Use		-0.00006	0.00056
Smoke		-0.00015	0.00065
Hispanic	0.001		
Exercise		-0.00015	0.00115
Seatbelt Use		0.00001	0.00099
Smoke		0.00001	0.00099
Diabetes			
White	-0.0061		
Exercise		-0.00042	-0.00568
Seatbelt Use		-0.00018	-0.00592
Smoke		0.00058	-0.00668
Black	-0.0007		
Exercise		-0.00042	-0.00028
Seatbelt Use		-0.00006	-0.00064
Smoke		0.00029	-0.00099
Asian	-0.0018		
Exercise		-0.00011	-0.00169
Seatbelt Use		-0.00018	-0.00162
Smoke		0.00024	-0.00204
Hispanic	-0.0021		
Exercise		-0.00042	-0.00168
Seatbelt Use		0.00004	-0.00214
Smoke		-0.00001	-0.00209

Table 3.11: Direct and Indirect Components of the Education-Health Gradient for Self-reported Health

(a)				(b)			
	Total Effects	Indirect Effects	Direct Effects		Total Effects	Indirect Effects	Direct Effects
Excellent				Good			
White	0.0195			White	-0.0107		
Exercise		0.00117	0.01833	Exercise		-0.00064	-0.01006
Seatbelt Use		0.00039	0.01912	Seatbelt Use		-0.00021	-0.01049
Smoke		0.00162	0.01788	Smoke		-0.00089	-0.00981
Black	0.0077			Black	-0.0172		
Exercise		0.00117	0.00653	Exercise		-0.00064	-0.01656
Seatbelt Use		0.00013	0.00757	Seatbelt Use		-0.00007	-0.01713
Smoke		0.00083	0.00687	Smoke		-0.00045	-0.01675
Asian	0.0043			Asian	-0.0024		
Exercise		0.00030	0.00400	Exercise		-0.00016	-0.00224
Seatbelt Use		0.00039	0.00392	Seatbelt Use		-0.00021	-0.00219
Smoke		0.00069	0.00361	Smoke		-0.00038	-0.00202
Hispanic	0.0084			Hispanic	-0.0046		
Exercise		0.00117	0.00723	Exercise		-0.00064	-0.00396
Seatbelt Use		-0.00009	0.00849	Seatbelt Use		0.00005	-0.00465
Smoke		-0.00004	0.00844	Smoke		0.00002	-0.00462
Very Good				Fair/Poor			
White	0.0061			White	-0.0148		
Exercise		0.00036	0.00574	Exercise		-0.00089	-0.01391
Seatbelt Use		0.00012	0.00598	Seatbelt Use		-0.00029	-0.01451
Smoke		0.00050	0.00560	Smoke		-0.00123	-0.01357
Black	0.0024			Black	-0.0059		
Exercise		0.00036	0.00204	Exercise		-0.00089	-0.00501
Seatbelt Use		0.00004	0.00236	Seatbelt Use		-0.00010	-0.00580
Smoke		0.00026	0.00214	Smoke		-0.00063	-0.00527
Asian	0.0013			Asian	-0.0033		
Exercise		0.00009	0.00121	Exercise		-0.00022	-0.00308
Seatbelt Use		0.00012	0.00118	Seatbelt Use		-0.00029	-0.00301
Smoke		0.00021	0.00109	Smoke		-0.00052	-0.00278
Hispanic	0.0026			Hispanic	-0.0064		
Exercise		0.00036	0.00224	Exercise		-0.00089	-0.00551
Seatbelt Use		-0.00003	0.00263	Seatbelt Use		0.00007	-0.00647
Smoke		-0.00001	0.00261	Smoke		0.00003	-0.00643

3.6.1.1 Analysis by Gender

The results of the association between education and health behavior for men and women are reported in Tables 3.12 and 3.13, respectively. Education is significantly inversely related to the probability of smoking for both genders and all the race/ethnic groups except for Hispanic women in the full model, who tend to smoke more as their years of schooling increase. Men experience a larger percentage-points reduction in the probability of smoking than women. Except among Hispanics, more education is associated with the probability of wearing a seat belt for both genders and with a higher probability among men than women. More education is positively related to exercising at least three times a week, although the relationship is weakened as controls are added to the model. A higher probability is experienced for women than for men. Among men, no racial disparity in the association of education with exercising behavior was found. Among women, White-NH, Black and Hispanic show no disparity but for Asian there is disparity in the association of education with exercising behavior.² For Hispanic women, the association between education and smoking, and, between education and wearing a seatbelt is completely offset.

Tables 3.14 and 3.15 show the relationship between education and health outcomes for men and women, respectively. Education is inversely associated with the probability of being obese for women in all the race/ethnic groups. For men, education is directly related to the probability of being obese for the Black and Hispanic groups, while the relationship with the probability declines for White-NH and Asian groups. Among White-NH and Black women, there is no disparity in the negative association of education with the probability of being hypertensive and no disparity between White-NH and Asian women in the negative relation of education with the probability of being diabetic. These gradients are significantly lower for Hispanic women. Among men, educa-

²Chow tests were conducted to test for statistical significance differences in the coefficients and are reported in Appendix B, Tables B.8 and B.12.

tion is inversely correlated with the probability of having diabetes for Whites and Hispanics only in the full model. For the Black and Asian population, the education health outcome gradient is completely offset for men.

Table 3.12: Variation in Education-Health Behavior Gradient by Gender: Male

Male Health Behaviours	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE									
White	-0.0422***	-0.0422	-0.0355***	-0.0355	15.88	-0.0322***	-0.0322	23.70	7.82
Black	0.0188***	-0.0234	0.0184***	-0.0171	26.92	0.0184***	-0.0138	41.03	14.10
Asian	0.0124***	-0.0298	0.0114**	-0.0241	19.13	0.0113**	-0.0209	29.87	10.74
Hispanic	0.0366***	-0.0056	0.0337***	-0.0018	67.86	0.0308***	-0.0014	75.00	7.14
SBELT									
White	0.0200***	0.0200	0.0188***	0.0188	6.00	0.0150***	0.0150	25.00	19.00
Black	-0.0117***	0.0083	-0.0114***	0.0074	10.84	-0.0104***	0.0046	44.58	33.73
Asian	0.0025	0.0200	0.0028	0.0188	6.00	-0.0046	0.0150	25.00	19.00
Hispanic	-0.0239***	-0.0039	-0.0232***	-0.0044	-12.82	-0.0196***	-0.0046	-17.95	-5.13
EXER									
White	0.0176***	0.0176	0.0133***	0.0133	24.43	0.0108***	0.0108	38.64	14.20
Black	0.0059*	0.0235	0.0059*	0.0192	18.45	0.0043	0.0108	54.08	35.63
Asian	-0.0045	0.0176	-0.0039	0.0133	24.43	-0.0024	0.0108	38.64	14.20
Hispanic	-0.0065**	0.0111	-0.00503*	0.0083	25.63	-0.0032	0.0108	2.88	-22.75

Table 3.13: Variation in Education-Health Behavior Gradient by Gender: Female

Female Health Behaviours	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE									
White	-0.0358***	-0.0358	-0.0279***	-0.0279	22.07	-0.0257***	-0.0257	28.21	6.15
Black	0.0114***	-0.0244	0.0106***	-0.0173	29.10	0.0106***	-0.0151	38.11	9.02
Asian	0.0190***	-0.0168	0.0166***	-0.0113	32.74	0.0165***	-0.0092	45.24	12.50
Hispanic	0.0348***	-0.0010	0.0309***	0.0003	130.00	0.0288***	0.0031	410.00	280.00
SBELT									
White	0.0129***	0.0129	0.0100***	0.0100	22.48	0.0075***	0.0075	41.86	19.38
Black	-0.0051***	0.0078	-0.0047**	0.0053	32.09	-0.0047**	0.0028	63.93	31.84
Asian	-0.0045*	0.0084	-0.0037*	0.0063	24.28	-0.0032	0.0043	48.68	24.40
Hispanic	-0.0123***	0.0006	-0.0108***	-0.0008	233.33	-0.0087***	-0.0012	293.33	60.00
EXER									
White	0.0214***	0.0214	0.0170***	0.0170	20.56	0.0141***	0.0141	34.11	13.55
Black	-0.0007	0.0214	-0.0002	0.0170	20.56	-0.0065	0.0141	34.11	13.55
Asian	-0.0013***	0.0201	-0.0123***	0.0057	71.66	-0.0128***	0.0013	93.54	21.88
Hispanic	-0.0060**	0.0151	-0.0041*	0.0131	12.82	-0.0015	0.0141	6.37	-6.44

Table 3.14: Variation in Education-Health Outcomes Gradient by Gender: Male

Health Outcomes	Male	Demographic controls		With Income			With Income & Other Controls			
		gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
BMI										
	White	-0.0168***	-0.0168	-0.0172***	-0.0172	-2.38	-0.0172***	-0.0172	-2.38	0.00
	Black	0.0211***	0.0043	0.0209***	0.0037	13.95	0.0203***	0.0031	27.91	13.95
	Asian	-0.0007	-0.0168	0.0008	-0.0172	-2.38	0.0101*	-0.0071	57.74	60.12
	Hispanic	0.0183***	0.0015	0.0182***	0.0010	33.33	0.0174***	0.0002	86.67	53.33
HYPER										
	White	-0.0101***	-0.0101	-0.0088***	-0.0088	12.67	-0.0080***	-0.0080	20.40	7.72
	Black	0.0086**	-0.0015	0.0086**	-0.0002	84.56	0.0087**	0.0006	141.61	57.05
	Asian	0.0096*	-0.0005	0.0094*	0.0006	230.43	0.0121**	0.0041	982.61	752.17
	Hispanic	0.0159***	0.0058	0.0154***	0.0066	-13.45	0.0133***	0.0053	9.31	22.76
HATTACK										
	White	-0.0043***	-0.0043	-0.0033***	-0.0033	24.25	-0.0028***	-0.0028	35.10	10.85
	Black	0.0045***	0.0002	0.0044***	0.0011	-558.82	0.0046***	0.0018	-947.06	-388.24
	Asian	0.0025	-0.0043	0.0023	-0.0033	24.25	0.0026	-0.0028	35.10	10.85
	Hispanic	0.0054***	0.0011	0.0051***	0.0018	-61.26	0.0048***	0.0020	-81.08	-19.82
DIAB										
	White	-0.0075***	-0.0075	-0.0064***	-0.0064	14.99	-0.0055***	-0.0055	26.24	11.24
	Black	0.0072***	-0.0002	0.0072***	0.0008	456.52	0.0074*	0.0019	908.70	452.17
	Asian	0.0064**	-0.0011	0.0062**	-0.0002	84.26	0.0065**	0.0010	191.67	107.41
	Hispanic	0.0053***	-0.0022	0.0049***	-0.0015	31.94	0.0040**	-0.0016	27.78	-4.17

Table 3.15: Variation in Education-Health Outcomes Gradient by Gender: Female

Health Outcomes	Female	Demographic controls		With Income			With Income & Other Controls			
		gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
BMI										
	White	-0.0226***	-0.0242	-0.0173***	-0.0211	12.81	-0.0178***	-0.0202	16.53	3.72
	Black	0.0174***	-0.0095	0.0168***	-0.0068	28.42	0.0170***	-0.0042	55.79	27.37
	Asian	0.0080**	-0.0162	0.0066*	-0.0137	15.37	0.0122***	-0.0035	78.40	63.02
	Hispanic	0.0168***	-0.0082	0.0140***	-0.0068	17.07	0.0137***	-0.0071	13.41	-3.66
HYPER										
	White	-0.0015***	-0.0015	-0.0118***	-0.0104	-588.74	-0.0113***	-0.0113	-648.34	-59.60
	Black	0.0042	-0.0015	0.0039	-0.0104	-588.74	0.0039	-0.0113	-648.34	-59.60
	Asian	0.0067*	0.0052	0.0057*	-0.0061	-18.60	0.0069*	-0.0182	-252.33	-233.72
	Hispanic	0.0010***	-0.0005	0.0085***	-0.0033	-585.42	0.0074***	-0.0039	-708.33	-122.92
HATTACK										
	White	-0.0021***	-0.0021	-0.0104*	-0.0104	-395.24	-0.0009	-0.0009	57.14	452.38
	Black	0.0014	-0.0021	0.0012	-0.0104	-395.24	0.0013	-0.0009	57.14	452.38
	Asian	0.0018	-0.0021	0.0014	-0.0104	-395.24	0.0017	-0.0009	57.14	452.38
	Hispanic	0.0018*	-0.0003	0.00120	-0.0104	-3254.84	0.0012	-0.0009	-190.32	3064.52
DIAB										
	White	-0.0102***	-0.0102	-0.0080***	-0.0080	21.57	-0.0073***	-0.0073	28.92	7.35
	Black	0.0043**	-0.0059	0.0042**	-0.0038	35.32	-0.0046**	-0.0027	54.10	18.77
	Asian	0.0030	-0.0102	0.0023	-0.0080	21.57	0.0027	-0.0073	28.92	7.35
	Hispanic	0.0065***	-0.0038	0.0054***	-0.0026	29.87	0.0047***	-0.0026	31.73	1.87

3.6.1.2 Analysis by Age Group

The data is grouped into three age groups: 25-44 years, 45-64 years, and 65-85 years. Tables 3.16, 3.17 and 3.18 show that education is positively correlated with positive health behaviors for 25-44 years, 45-64 years and 65-85 years, respectively. More education is related to the probability of smoking the most for the 25-44 age group, with the least association for the 65-85 age group. For the 65-85 age group there is no race/ethnicity disparity in the magnitude of the gradients. Generally, the White-NH group enjoys a higher reduction in the probability of smoking than the minority groups, while Blacks have the highest reduction among minority groups, but the association for Hispanics is not consistent. For younger age groups, education is positively related to smoking behavior among Hispanics, but the opposite is observed as they age.

Table 3.16: Variation in Education-Health Behavior Gradient by Age Groups: 25-44 years

25-44yrs Health Behaviours	Demographic controls gradient	β	With Income gradient	γ	decline(%)	With Income & Other Controls gradient	α	decline(%)	diff-diff(%)
SMOKE									
White	-0.0571***	-0.0571	-0.0483***	-0.0483	15.41	-0.0435***	-0.0435	23.82	8.41
Black	0.0185***	-0.0386	0.0177***	-0.0306	20.73	0.0180***	-0.0255	33.94	13.21
Asian	0.0214***	-0.0357	0.0210***	-0.0273	23.53	0.0225***	-0.0210	41.18	17.65
Hispanic	0.0551***	-0.0020	0.0507***	0.0024	220.00	0.0461***	0.0026	230.00	10.00
SBELT									
White	0.0221***	0.0221	0.0200***	0.0200	9.50	0.0161***	0.0161	27.15	17.65
Black	-0.0126***	0.0095	-0.0122***	0.0078	17.89	-0.0117***	0.0044	53.68	35.79
Asian	-0.00477	0.0221	-0.00482	0.0200	9.50	-0.00218	0.0161	27.15	17.65
Hispanic	-0.0257***	-0.0036	-0.0246***	-0.0046	-27.78	-0.0207***	-0.0046	-27.78	0.00
EXER									
White	0.0123***	0.0123	0.0083***	0.0083	32.68	0.0063***	0.0063	49.11	16.42
Black	0.0033	0.0123	0.0030	0.0083	32.68	0.0017	0.0063	49.11	16.42
Asian	0.0052	0.0123	0.0050	0.0083	32.68	0.0117*	0.0180	-46.02	-78.70
Hispanic	0.0038	0.0123	0.0056*	0.0139	-12.85	0.0075**	0.0137	-11.63	1.22

Table 3.17: Variation in Education-Health Behavior Gradient by Age Groups: 45-64 years

45-64yrs Health Behaviours	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE									
White	-0.0423***	-0.0423	-0.0342***	-0.0342	19.15	-0.0316***	-0.0316	25.30	6.15
Black	0.0210***	-0.0213	0.0217***	-0.0125	41.31	0.0218***	-0.0098	53.99	12.68
Asian	0.0258***	-0.0165	0.0230***	-0.0112	32.12	0.0229***	-0.0087	47.27	15.15
Hispanic	0.0419***	-0.0004	0.0381***	0.0039	1075.00	0.0352***	0.0036	1000.00	-75.00
SBELT									
White	0.0151***	0.0151	0.0128***	0.0128	15.23	0.0100***	0.0100	33.91	18.68
Black	-0.0044*	0.0107	-0.0045*	0.0083	22.12	-0.0046*	0.0054	49.77	27.65
Asian	-0.0048*	0.0103	-0.0040	0.0128	-24.51	-0.0048	0.0100	2.92	27.43
Hispanic	-0.0157***	-0.0006	-0.0146***	-0.0018	-200.00	-0.0120***	-0.0020	-236.67	-36.67
EXER									
White	0.0219***	0.0219	0.0168***	0.0168	23.29	0.0131***	0.0131	40.18	16.89
Black	0.0007	0.0219	-0.0010	0.0168	23.29	-0.0018	0.0131	40.18	16.89
Asian	-0.0066	0.0219	-0.0053	0.0168	23.29	-0.0065	0.0131	40.18	16.89
Hispanic	-0.0103***	0.0116	-0.00843***	0.0084	27.84	-0.0048*	0.0083	28.10	0.26

Table 3.18: Variation in Education-Health Behavior Gradient by Age Groups: 65-85 years

65-85yrs Health Behaviours	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE									
White	-0.0110***	-0.0110	-0.0086***	-0.0086	22.00	-0.0081***	-0.0081	26.00	4.00
Black	0.0044*	-0.0066	0.0036	-0.0086	-30.00	0.0032	-0.0081	-23.33	6.67
Asian	0.0027	-0.0110	0.0014	-0.0086	22.00	0.0027	-0.0081	26.00	4.00
Hispanic	0.0056**	-0.0054	0.0044*	-0.0042	21.42	0.00420	-0.0081	-51.58	-73.00
SBELT									
White	0.0106***	0.0106	0.0092***	0.0092	13.11	0.0069***	0.0069	35.19	22.08
Black	-0.0084***	0.0022	-0.0079***	0.0013	41.10	-0.0068**	0.0000	98.63	57.53
Asian	-0.0008	0.0106	-0.0015	0.0092	13.11	-0.0020	0.0069	35.19	22.08
Hispanic	-0.0101***	0.0005	-0.0094***	-0.0002	134.00	-0.00752***	-0.0007	230.00	96.00
EXER									
White	0.0235***	0.0235	0.0195***	0.0195	17.02	0.0164***	0.0164	30.21	13.19
Black	-0.0008	0.0235	-0.0003	0.0195	17.02	-0.0004	0.0164	30.21	13.19
Asian	-0.0179***	0.0056	-0.0160***	0.0035	37.50	-0.0181***	-0.0017	130.36	92.86
Hispanic	-0.0105**	0.0130	-0.0085**	0.0110	15.62	-0.0066*	0.0098	24.62	9.00

Education is positively related with wearing a seatbelt for all the race/ethnicity groups except for Hispanics, for whom more education is associated with a lower probability of wearing a seatbelt. These probabilities are higher for younger age groups. Education is directly related to the probability of exercising at least three times a week among all the race/ethnicity groups. Surprisingly, the relation is highest among the 65-85 age groups for Whites-NH and Blacks, but is highest among the 25-44 age group for Asians and Hispanics.³

Tables 3.19, 3.20 and 3.21 report the association of education with health outcomes for the three age groups. Individuals in the youngest age group enjoy the biggest education-health gradient of the probability of not being obese even though they have the lowest gradient of the probability of exercising three times a week. For the 65-85 age group, education is unrelated to the probability of having a heart attack. Except for Hispanics, education is negatively associated with the probability of having a heart attack in the 25-44 age group.⁴

Table 3.19: Variation in Education-Health Outcomes Gradient by Age Groups: 25-44 years

25-44yrs	Demographic controls		With Income		With Income & Other Controls				
Health Outcomes	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
BMI									
White	-0.0260***	-0.0260	-0.0217***	-0.0217	16.54	-0.0217***	-0.0217	16.54	0.00
Black	0.0220***	-0.0040	0.0214***	0.0003	107.50	0.0217***	0.0000	100.00	-7.50
Asian	-0.0029	-0.0260	-0.0026	-0.0217	16.54	0.0137*	-0.0080	69.23	52.69
Hispanic	0.0256***	-0.0004	0.0232***	0.0015	475.00	0.0213***	-0.0004	0.00	-475.00
HYPER									
White	-0.0096***	-0.0096	-0.0074***	-0.0074	22.86	-0.0066***	-0.0066	30.69	7.83
Black	0.0082***	-0.0013	0.0083***	0.0009	164.18	0.0084***	0.0018	231.34	67.16
Asian	0.0059	-0.0096	0.0061	-0.0074	22.86	0.0101**	0.0035	136.12	113.26
Hispanic	0.0138***	0.0042	0.0129***	0.0055	-30.57	0.0102***	0.0036	15.64	46.21
HATTACK									
White	-0.0010***	-0.0010	-0.0007**	-0.0007	26.80	-0.0006*	-0.0006	38.79	11.99
Black	0.0004	-0.0010	0.0004	-0.0007	26.80	0.0004	-0.0006	38.79	11.99
Asian	0.0005	-0.0010	0.0005	-0.0007	26.80	0.0012	-0.0006	38.79	11.99
Hispanic	0.0012**	0.0003	0.0012**	0.0005	-75.48	0.0010*	0.0004	-44.44	31.03
DIAB									
White	-0.0049***	-0.0049	-0.0040***	-0.0040	18.61	-0.0035***	-0.0035	28.43	9.82
Black	0.0026*	-0.0023	0.0027*	-0.0013	43.56	0.0029*	-0.0007	71.11	27.56
Asian	0.0031	-0.0049	0.0032	-0.0040	18.61	0.0028	-0.0035	28.43	9.82
Hispanic	0.00457***	-0.0003	0.0042***	0.0002	168.75	0.0033***	-0.0002	46.88	-121.88

³Chow tests for statistical significance difference are reported in Appendix B, Tables B.16, B.20 and B.24.

⁴Chow tests for statistical significance difference are reported in Appendix B, Tables B.18, B.22 and B.26.

Table 3.20: Variation in Education-Health Outcomes Gradient by Age Groups: 45-64 years

45-64yrs Health Outcomes	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
BMI									
White	-0.0198***	-0.0198	-0.0178***	-0.0178	10.10	-0.0168***	-0.0168	15.15	5.05
Black	0.0193***	-0.0005	0.0196***	0.0018	460.00	0.0192***	0.0024	580.00	120.00
Asian	0.0112**	-0.0086	0.0107**	-0.0071	17.44	0.0163***	-0.0005	94.19	76.74
Hispanic	0.0147***	-0.0051	0.0138***	-0.0040	21.57	0.0122***	-0.0046	9.80	-11.76
HYPER									
White	-0.0183***	-0.0183	-0.0156***	-0.0156	14.75	-0.0134***	-0.0134	26.78	12.02
Black	0.0036	-0.0183	0.00419	-0.0156	14.75	0.0034	-0.0134	26.78	12.02
Asian	0.0126**	-0.0057	0.0119**	-0.0037	35.09	0.0135**	0.0001	101.75	66.67
Hispanic	0.0159***	-0.0024	0.0148***	-0.0008	66.67	0.0114***	-0.0020	16.67	-50.00
HATTACK									
White	-0.0052***	-0.0052	-0.0039***	-0.0039	25.57	-0.0031***	-0.0031	41.60	16.03
Black	0.0036**	-0.0016	0.0038**	-0.0001	93.21	0.0038**	0.0007	143.83	50.62
Asian	0.0034*	-0.0019	0.0031	-0.0039	-109.68	0.0035	-0.0031	-64.52	45.16
Hispanic	0.0054***	0.0002	0.0049***	0.0010	-494.12	0.0041***	0.0011	-535.29	-41.18
DIAB									
White	-0.0137***	-0.0137	-0.0113***	-0.0113	17.52	-0.0092***	-0.0092	32.92	15.40
Black	0.0072***	-0.0065	0.0077***	-0.0036	44.38	0.0076***	-0.0016	75.65	31.28
Asian	0.0106***	-0.0031	0.0101***	-0.0012	61.29	0.0104***	0.0012	139.03	77.74
Hispanic	0.0085***	-0.0052	0.0076***	-0.0037	28.98	0.0053**	-0.0039	24.76	-4.22

Table 3.21: Variation in Education-Health Outcomes Gradient by Age Groups: 65-85 years

65-85yrs Health Outcomes	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
BMI									
White	-0.0111***	-0.0111	-0.0102***	-0.0102	8.11	-0.0112***	-0.0112	-0.90	-9.01
Black	0.0109**	-0.0002	0.0105**	0.0003	250.00	0.0093**	-0.0019	-870.00	-1120.00
Asian	-0.0012	-0.0111	-0.00074	-0.0102	8.11	0.0063	-0.0112	-0.90	-9.01
Hispanic	0.0085**	-0.0026	0.0079**	-0.0023	11.88	0.0080**	-0.0032	-21.46	-33.33
HYPER									
White	-0.0106***	-0.0106	-0.0083***	-0.0083	21.79	-0.0089***	-0.0089	16.23	-5.57
Black	0.0088*	-0.0018	0.0078	-0.0083	-363.13	0.0071	-0.0089	-396.09	-32.96
Asian	0.0102*	-0.0004	0.0091	-0.0083	-1972.50	0.0096	-0.0089	-2120.00	-147.50
Hispanic	0.0096**	-0.0010	0.0082*	-0.0001	89.22	0.0074*	-0.0015	-49.02	-138.24
HATTACK									
White	-0.0034***	-0.0034	-0.0018	0.0000	100.00	-0.0016	0.0000	100.00	0.00
Black	0.0043	-0.0034	0.0037	0.0000	100.00	0.0037	0.0000	100.00	0.00
Asian	0.0030	-0.0034	0.0022	0.0000	100.00	0.00322	0.0000	100.00	0.00
Hispanic	0.0051*	0.0017	0.0042	0.0000	100.00	0.00394	0.0000	100.00	0.00
DIAB									
White	-0.0095***	-0.0095	-0.0078***	-0.0078	17.51	-0.0076***	-0.0076	20.36	2.85
Black	0.0100**	0.0005	0.0094**	0.0016	-209.80	0.0094**	0.0019	-270.59	-60.78
Asian	0.0012	-0.0095	0.00035	-0.0078	17.51	0.0015	-0.0076	20.36	2.85
Hispanic	0.0067*	-0.0028	0.0058*	-0.0020	26.98	0.0054	-0.0076	-171.58	-198.56

3.6.1.3 Analysis by Region of Birth

Tables 3.22, 3.23, 3.24 and 3.25 are the results of the gradients of education on health behaviors analyzed by region: Northeast, Midwest, South, and West, respectively. White-NH, Black, Asian, and Hispanic groups all have the highest education-health gradient of not smoking in the Midwest: 3.7%, 2.1%, 1.3%, and 0.33%, respectively. Whites-NH and Asians have the highest gradient of wearing a seatbelt in the Midwest (both at 1.9%), while Blacks and Hispanics have the highest gradient for this behavior in the Northeast-(1.4% and 0.5%, respectively). Education is generally associated with the probability of exercising among all regions. Whites-NH and Blacks have the highest education-health gradient of exercising in the West (1.4% and 2.6%, respectively), while Asians and Hispanics have the highest gradient in the Midwest (both at 1.4%).

Table 3.22: Variation in Education-Health Behavior Gradient by Region: Northeast

Region I Health Behaviours	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE									
White	-0.0354***	-0.0354	-0.0287***	-0.0287	18.93	-0.0265***	-0.0265	25.14	6.21
Black	0.00912*	-0.0263	0.00980*	-0.0189	28.08	0.00979*	-0.0167	36.42	8.33
Asian	0.0141**	-0.0213	0.0127*	-0.0160	24.88	0.0141**	-0.0124	41.78	16.90
Hispanic	0.0279***	-0.0075	0.0254***	-0.0033	56.00	0.0240***	-0.0025	66.67	10.67
SBELT									
White	0.0183***	0.0183	0.0162***	0.0162	11.48	0.0140***	0.0140	23.50	12.02
Black	-0.00686	0.0183	-0.00729*	0.0089	51.31	-0.00681	0.0140	23.50	-27.81
Asian	-0.00455	0.0183	-0.00423	0.0162	11.48	-0.00767	0.0140	23.50	12.02
Hispanic	-0.0113***	0.0070	-0.0106***	0.0056	20.00	-0.00931**	0.0047	33.00	13.00
EXER									
White	0.0165***	0.0165	0.0122***	0.0122	26.06	0.0104***	0.0104	36.97	10.91
Black	0.000690	0.0165	-0.000486	0.0122	26.06	-0.00225	0.0104	36.97	10.91
Asian	0.00299	0.0165	0.00332	0.0122	26.06	-0.000289	0.0104	36.97	10.91
Hispanic	0.00342	0.0165	0.00464	0.0122	26.06	-0.00397	0.0104	36.97	10.91

Table 3.23: Variation in Education-Health Behavior Gradient by Region: Midwest

Health Behaviours	Region2	Demographic controls		With Income			With Income & Other Controls			
		gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE										
	White	-0.0484***	-0.0484	-0.0402***	-0.0402	16.94	-0.0368***	-0.0368	23.97	7.02
	Black	0.0170***	-0.0314	0.0165***	-0.0237	24.52	0.0159***	-0.0209	33.44	8.92
	Asian	0.0184**	-0.0300	0.0181**	-0.0221	26.33	0.0234**	-0.0134	55.33	29.00
	Hispanic	0.0410***	-0.0074	0.0364***	-0.0038	48.65	0.0335***	-0.0033	55.41	6.76
SBELT										
	White	0.0255***	0.0255	0.0229***	0.0229	10.20	0.0189***	0.0189	25.88	15.69
	Black	-0.0232***	0.0023	-0.0230***	-0.0001	104.35	-0.0207***	-0.0018	178.26	73.91
	Asian	0.0160*	0.0415	0.0164*	0.0393	5.30	0.0122	0.0189	54.46	49.16
	Hispanic	-0.0235***	0.0020	-0.0222***	0.0007	65.00	-0.0203***	-0.0014	170.00	105.00
EXER										
	White	0.0192***	0.0192	0.0156***	0.0156	18.75	0.0145***	0.0140	27.08	8.33
	Black	-0.00509	0.0192	-0.00576	0.0156	18.75	-0.00912*	0.0054	71.98	53.23
	Asian	-0.0116	0.0192	-0.0118	0.0156	18.75	-0.0135	0.0140	27.08	8.33
	Hispanic	-0.000602	0.0192	0.00112	0.0156	18.75	-0.00262	0.0140	27.08	8.33

Table 3.24: Variation in Education-Health Behavior Gradient by Region: South

Health Behaviours	Region3	Demographic controls		With Income			With Income & Other Controls			
		gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE										
	White	-0.0360***	-0.0360	-0.0277***	-0.0277	23.06	-0.0251***	-0.0251	30.28	7.22
	Black	0.0115***	-0.0245	0.0104***	-0.0173	29.39	0.0107***	-0.0144	41.22	11.84
	Asian	0.0134***	-0.0226	0.0102**	-0.0175	22.57	0.0120**	-0.0131	42.04	19.47
	Hispanic	0.0322***	-0.0038	0.0281***	0.0004	110.53	0.0265***	0.0014	136.84	26.32
SBELT										
	White	0.0149***	0.0149	0.0125***	0.0125	16.11	0.00927***	0.0093	37.79	21.68
	Black	-0.00539**	0.0095	-0.00486**	0.0076	19.66	-0.00505**	0.0042	55.63	35.96
	Asian	-0.00283	0.0149	-0.00201	0.0125	16.11	-0.00645*	0.0028	81.07	64.97
	Hispanic	-0.0161***	-0.0012	-0.0149***	-0.0024	-100.00	-0.0125***	-0.0032	-169.17	-69.17
EXER										
	White	0.0186***	0.0186	0.0142***	0.0142	23.66	0.0115***	0.0115	38.17	14.52
	Black	0.00512*	0.0237	0.00512*	0.0193	18.55	0.00401	0.0115	51.52	32.97
	Asian	-0.00934*	0.0093	-0.00785	0.0142	-53.35	-0.00621	0.0115	-24.19	29.16
	Hispanic	-0.00502*	0.0136	-0.00312	0.0142	-4.57	-0.00131	0.0115	15.32	19.88

Table 3.25: Variation in Education-Health Behavior Gradient by Region: West

Region4	Demographic controls		With Income			With Income & Other Controls				
	Health Behaviours	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
SMOKE										
White	-0.0361***	-0.0361	-0.0319***	-0.0319	11.63	-0.0300***	-0.0300	16.90	5.26	
Black	0.0151***	-0.0210	0.0153**	-0.0166	20.95	0.0156***	-0.0144	31.43	10.48	
Asian	0.0223***	-0.0138	0.0217***	-0.0102	26.09	0.0209***	-0.0091	34.06	7.97	
Hispanic	0.0342***	-0.0019	0.0326***	0.0007	136.84	0.0310***	0.0010	152.63	15.79	
SBELT										
White	0.00732***	0.0073	0.00661***	0.0066	9.70	0.00546***	0.0055	25.41	15.71	
Black	-0.00338	0.0073	-0.00337	0.0066	9.70	-0.00269	0.0055	25.41	15.71	
Asian	-0.000630	0.0073	-0.000453*	0.0062	15.89	-0.000354*	0.0051	30.25	14.36	
Hispanic	-0.00974***	-0.0024	-0.00939***	-0.0028	-14.88	-0.00849***	-0.0030	-25.21	-10.33	
EXER										
White	0.0205***	0.0205	0.0164***	0.0164	20.00	0.0138***	0.0138	32.68	12.68	
Black	0.0159*	0.0364	0.0148*	0.0312	14.29	0.0123	0.0138	62.09	47.80	
Asian	-0.0129***	0.0076	-0.0124**	0.0040	47.37	-0.0131***	0.0007	90.79	43.42	
Hispanic	-0.00827**	0.0122	-0.00688*	0.0095	22.16	-0.00471	0.0138	-12.84	-35.00	

The results of the relationship of education with health outcomes analyzed by region North-east, Midwest, South, and West are displayed in Tables 3.26, 3.27, 3.28, and 3.29, respectively. There is less disparity among race/ethnicity in each region regarding the education-health gradient on diabetes except in the South. The Northeast region has the highest gradient (0.9%), while the West has the lowest (0.4%). Education is inversely related to the probability of being obese for all race/ethnic groups in all regions except for Blacks, who only experience a reduced probability in the West. The association of education with having a heart attack is not significant in the Northeast, and the correlation reveals no disparity in being hypertensive. The White-NH and Black groups within each region experience similar education-health gradients except in the South, where Blacks experience a larger positive relationship between education and the probability of being hypertensive and the probability of having a heart attack than Whites-NH. With more income, these individuals appear to have poorer health behaviors.

Table 3.26: Variation in Education-Health Outcomes Gradient by Region: Northeast

Region1	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
Health Outcomes									
BMI									
White	-0.0217***	-0.0217	-0.0193***	-0.0193	11.06	-0.0196***	-0.0196	9.68	-1.38
Black	0.0211***	-0.0006	0.0207***	0.0014	333.33	0.0204***	0.0008	233.33	-100.00
Asian	0.0103	-0.0217	0.00997	-0.0193	11.06	0.0191***	-0.0005	97.70	86.64
Hispanic	0.0132***	-0.0085	0.0119**	-0.0074	12.94	0.0123**	-0.0073	14.12	1.18
HYPER									
White	-0.0108***	-0.0108	-0.00921***	-0.0092	14.72	-0.00892***	-0.0089	17.41	2.69
Black	0.000549	-0.0108	-0.000487	-0.0092	14.72	-0.000279	-0.0089	17.41	2.69
Asian	-0.000184	-0.0108	-0.000550	-0.0092	14.72	0.000230	-0.0089	17.41	2.69
Hispanic	0.00480	-0.0108	0.00406	-0.0092	14.72	0.00446	-0.0089	17.41	2.69
HATTACK									
White	-0.00247*	-0.0025	-0.00160	0.0000	100.00	-0.00131	0.0000	100.00	0.00
Black	0.00237	-0.0025	0.00233	0.0000	100.00	0.00236	0.0000	100.00	0.00
Asian	0.00264	-0.0025	0.00235	0.0000	100.00	0.00357	0.0000	100.00	0.00
Hispanic	0.00187	-0.0025	0.00150	0.0000	100.00	0.00154	0.0000	100.00	0.00
DIAB									
White	-0.0111***	-0.0111	-0.00983***	-0.0098	11.44	-0.00917***	-0.0092	17.39	5.95
Black	0.00444	-0.0111	0.00454	-0.0098	11.44	0.00465	-0.0092	17.39	5.95
Asian	0.00311	-0.0111	0.00281	-0.0098	11.44	0.00352	-0.0092	17.39	5.95
Hispanic	0.00751**	-0.0036	0.00704**	-0.0028	22.28	0.00708**	-0.0021	41.78	19.50

Table 3.27: Variation in Education-Health Outcomes Gradient by Region: Midwest

Region2	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
Health Outcomes									
BMI									
White	-0.0220***	-0.0220	-0.0191***	-0.0191	13.18	-0.0194***	-0.0194	11.82	-1.36
Black	0.0206***	-0.0014	0.0208***	0.0017	221.43	0.0210***	0.0016	214.29	-7.14
Asian	0.00301	-0.0220	0.00293	-0.0191	13.18	0.0188*	-0.0006	97.27	84.09
Hispanic	0.0202***	-0.0018	0.0190***	-0.0001	94.44	0.0180***	-0.0014	22.22	-72.22
HYPER									
White	-0.0136***	-0.0136	-0.00995***	-0.0100	26.84	-0.0101***	-0.0101	25.74	-1.10
Black	0.00489	-0.0136	0.00525	-0.0100	26.84	0.00614	-0.0101	25.74	-1.10
Asian	0.00117	-0.0136	0.00120	-0.0100	26.84	0.0168*	0.0067	149.26	122.43
Hispanic	0.0146***	0.0010	0.0130**	0.0031	-205.00	0.0115**	0.0014	-40.00	165.00
HATTACK									
White	-0.00401***	-0.0401	-0.00279**	-0.0028	93.04	-0.00268**	-0.0027	93.32	0.27
Black	0.00483*	0.0008	0.00494*	0.0022	-162.20	0.00545**	0.0028	-237.80	-75.61
Asian	0.00565	-0.0401	0.00586	-0.0028	93.04	0.0102	-0.0027	93.32	0.27
Hispanic	0.00467*	0.0007	0.00416	-0.0028	522.73	0.00407	-0.0027	506.06	-16.67
DIAB									
White	-0.00801***	-0.0080	-0.00665***	-0.0067	16.98	-0.00627***	-0.0063	21.72	4.74
Black	0.00599*	-0.0020	0.00620*	-0.0005	77.72	0.00664*	0.0004	118.32	40.59
Asian	0.000791	-0.0080	0.000834	-0.0067	16.98	0.000942	-0.0063	21.72	4.74
Hispanic	0.00467	-0.0080	0.00405	-0.0067	16.98	0.00317	-0.0063	21.72	4.74

Table 3.28: Variation in Education-Health Outcomes Gradient by Region: South

Region3	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
Health Outcomes									
BMI									
White	-0.0176***	-0.0176	-0.0146***	-0.0146	17.05	-0.0150***	-0.0150	14.77	-2.27
Black	0.0160***	-0.0016	0.0154***	0.0008	150.00	0.0154***	0.0004	125.00	-25.00
Asian	-0.00347	-0.0176	-0.00442	-0.0146	17.05	0.00826	-0.0150	14.77	-2.27
Hispanic	0.0147***	-0.0029	0.0131***	-0.0015	48.28	0.0124***	-0.0026	10.34	-37.93
HYPER									
White	-0.0125***	-0.0125	-0.0106***	-0.0106	15.20	-0.00995***	-0.0100	20.40	5.20
Black	0.00622*	-0.0063	0.00607*	-0.0045	27.87	0.00603**	-0.0039	37.58	9.71
Asian	0.00621	-0.0125	0.00552	-0.0106	15.20	0.00984*	-0.0001	99.12	83.92
Hispanic	0.0137***	0.0012	0.0128***	0.0022	-83.33	0.0113***	0.0014	-12.50	70.83
HATTACK									
White	-0.00316***	-0.0032	-0.00202***	-0.0020	36.08	-0.00149*	-0.0015	52.85	16.77
Black	0.00222*	-0.0009	0.00198*	0.0000	95.74	0.00211*	0.0006	165.96	70.21
Asian	0.00236	-0.0032	0.00195	-0.0020	36.08	0.00220	-0.0015	52.85	16.77
Hispanic	0.00379***	0.0006	0.00322**	0.0012	-90.48	0.00291**	0.0014	-125.40	-34.92
DIAB									
White	-0.00846***	-0.0085	-0.00639***	-0.0064	24.47	-0.00546***	-0.0055	35.46	10.99
Black	0.00534***	-0.0031	0.00510**	-0.0013	58.65	0.00531***	-0.0002	95.19	36.54
Asian	0.00685*	-0.0016	0.00602*	-0.0004	77.02	0.00648*	0.0010	163.35	86.34
Hispanic	0.00395**	-0.0045	0.00291*	-0.0035	22.84	0.00204	-0.0055	-21.06	-43.90

Table 3.29: Variation in Education-Health Outcomes Gradient by Region: West

Region4	Demographic controls		With Income			With Income & Other Controls			
	gradient	β	gradient	γ	decline(%)	gradient	α	decline(%)	diff-diff(%)
Health Outcomes									
BMI									
White	-0.0195***	-0.0195	-0.0178***	-0.0178	8.72	-0.0177***	-0.0177	9.23	0.51
Black	0.0116	-0.0195	0.0116	-0.0178	8.72	0.0125*	-0.0052	73.33	64.62
Asian	0.0126**	-0.0069	0.0123**	-0.0055	20.29	0.0134**	-0.0043	37.68	17.39
Hispanic	0.0184***	-0.0011	0.0176***	-0.0002	81.82	0.0168***	-0.0009	18.18	-63.64
HYPER									
White	-0.0114***	-0.0114	-0.00928***	-0.0093	18.60	-0.00893***	-0.0089	21.67	3.07
Black	0.00944	-0.0114	0.00954	-0.0093	18.60	0.0104	-0.0089	21.67	3.07
Asian	0.00906**	-0.0023	0.00863*	-0.0007	72.22	0.00903**	0.0001	104.27	32.05
Hispanic	0.0101***	-0.0013	0.00924***	0.0000	96.92	0.00812**	-0.0008	37.69	-59.23
HATTACK									
White	-0.00255**	-0.0026	-0.00170*	-0.0017	33.33	-0.00159	0.0000	100.00	66.67
Black	0.00196	-0.0026	0.00176	-0.0017	33.33	0.00198	0.0000	100.00	66.67
Asian	0.00111	-0.0026	0.000883	-0.0017	33.33	0.00111	0.0000	100.00	66.67
Hispanic	0.00274*	0.0002	0.00249*	0.0008	-315.79	0.00235*	0.0024	-1136.84	-821.05
DIAB									
White	-0.00663***	-0.0066	-0.00520***	-0.0052	21.57	-0.00431***	-0.0043	34.99	13.42
Black	-0.00103	-0.0066	-0.000886	-0.0052	21.57	-0.00141	-0.0043	34.99	13.42
Asian	-0.00294	-0.0066	0.00268	-0.0052	21.57	0.00304	-0.0043	34.99	13.42
Hispanic	0.00510**	-0.0015	0.00464**	-0.0006	63.40	0.00373*	-0.0006	62.09	-1.31

3.7 Estimating a Causal Relationship

The objective in this section of the paper is to estimate a causal effect of education (high school graduation) on health behaviors, and health outcomes. According to Manski et al. (1992), the conditional average treatment effect can be obtained by considering how the probability of exhibiting a particular health behavior or the probability of developing a health outcome varies with high school graduation.

The method characterizes each individual by values of the variables (Y_{1i}, Y_{0i}, D_i, X) . Variable Y_{1i} indicates the outcome the individual would have if she graduated from high school and Y_{0i} indicates the outcome the individual would have if she did not graduate. The treatment variable (D_i) is a binary indicator with a value of one if the individual is in the treated group (graduated from high school) and zero otherwise. Variable X is a vector of observed covariates describing the individual (race, age group, and gender).

$$\begin{aligned} Y &= Y_{1i} & \text{if } D_i &= 1 \\ Y &= Y_{0i} & \text{if } D_i &= 0 \end{aligned} \tag{3.15}$$

This method assumes that no prior information about the probability distribution of (Y_{1i}, Y_{0i}, D_i) conditioned on X is available.

3.7.1 Model Identification

I am estimating the conditional average treatment effect of education (graduating high school) on health and health behaviors. The average treatment effect (ATE) of education on a health behavior or health outcome conditioned on X is calculated as:

$$P(Y_{1i} = 1|X) - P(Y_{0i} = 1|X) \quad (3.16a)$$

By the law of total probability,

$$P(Y_{1i} = 1|X) = P(Y_{1i} = 1|X, D_i = 0)P(D_i = 0|X) + P(Y_{1i} = 1|X, D_i = 1)P(D_i = 1|X) \quad (3.16b)$$

$$P(Y_{0i} = 1|X) = P(Y_{0i} = 1|X, D_i = 0)P(D_i = 0|X) + P(Y_{0i} = 1|X, D_i = 1)P(D_i = 1|X) \quad (3.16c)$$

From the sampling process of the data, I can identify

$$P(Y_{1i} = 1|X, D_i = 1), \quad P(Y_{0i} = 1|X, D_i = 0), \quad P(D_i = 0|X) \quad \text{and} \quad P(D_i = 1|X),$$

but I can not identify

$$P(Y_{1i} = 1|X, D_i = 0) \quad \text{and} \quad P(Y_{0i} = 1|X, D_i = 1).$$

The reason is that outcome Y_{1i} is not realized when $D_i = 0$ and outcome Y_{0i} is not realized when $D_i = 1$. So, in the absence of prior information, I cannot identify both $P(Y_{1i} = 1|X)$ and $P(Y_{0i} = 1|X)$. Manski et al. (1992) and Manski (1989) showed that even though $P(Y_{1i} = 1|X)$

and $P(Y_{0i} = 1|X)$ cannot be estimated, they can be bounded using the conditional probabilities that we can identify ($P(Y_{1i} = 1|X, D_i = 1)$, $P(Y_{0i} = 1|X, D_i = 0)$, $P(D_i = 0|X)$ and $P(D_i = 1|X)$).

I estimate the bounds under the monotone treatment selection (MTS) assumption. That is:

$$P[Y_{1i} = 1|D_i = 1, X] \geq P[Y_{1i} = 1|D_i = 0, X] \quad (3.17a)$$

$$P[Y_{0i} = 1|D_i = 1, X] \geq P[Y_{0i} = 1|D_i = 0, X] \quad (3.17b)$$

The MTS assumption concept introduced by Manski and Pepper (2000) implies that people who elect to graduate high school ($D_i=1$) have higher potential of reporting better health, health outcomes, and health behaviors than people who choose not to finish high school. This assumption is made based on evidence from published papers that education has a positive casual effect on health production (Cutler and Lleras-Muney (2006); Ding et al. (2009); Lleras-Muney (2005); Silles (2009)). Educated individuals are more productively efficient in their demand for health in terms of treatment and medical procedures, investment in health behaviors, and other ways to slow down their health depreciation.

I use equations (3.16a), (3.16b), and (3.16c), to calculate the bounds of the conditional average treatment effect (CATE) under the MTS assumption. CATE can be expressed as

$$\begin{aligned} \text{CATE} &= P(Y_{1i} = 1|X) - P(Y_{0i} = 1|X) \\ &= [P(Y_{1i} = 1|X, D_i = 0)P(D_i = 0|X) + P(Y_{1i} = 1|X, D_i = 1)P(D_i = 1|X)] \\ &\quad - [P(Y_{0i} = 1|X, D_i = 0)P(D_i = 0|X) + P(Y_{0i} = 1|X, D_i = 1)P(D_i = 1|X)] \end{aligned} \quad (3.18a)$$

Because the outcome Y_i is binary, the MTS assumption equation (3.17a) for the lower bound of CATE is

$$\begin{aligned} P[Y_{1i} = 1|D_i = 0, X] = 0 &\Rightarrow P[Y_{1i} = 1|D_i = 1, X] \geq 0 \\ P[Y_{0i} = 1|D_i = 1, X] = 1 &\Rightarrow 1 \geq P[Y_{0i} = 1|D_i = 0, X] \end{aligned} \quad (3.19)$$

and the MTS assumption equation (3.17a) for the upper bound of CATE is

$$\begin{aligned} P[Y_{1i} = 1|D_i = 0, X] &= P[Y_{1i} = 1|D_i = 1, X] \\ P[Y_{0i} = 1|D_i = 1, X] &= P[Y_{0i} = 1|D_i = 0, X] \end{aligned} \quad (3.20)$$

Using the above assumptions, the lower bound of CATE is

$$= [P(Y_{1i} = 1|X, D_i = 1)P(D_i = 1|X)] - [P(Y_{0i} = 1|X, D_i = 0)P(D_i = 0|X) + P(D_i = 1|X)] \quad (3.21)$$

and the upper bound is

$$= [P(Y_{1i} = 1|X, D_i = 1)] - [P(Y_{0i} = 1|X, D_i = 0)] \quad (3.22)$$

The procedure to estimate these bounds has the following steps:

1. Each respondent is characterized by (Y_i, D_i, X_i) with Y_i taking values $k=0,1$, D_i taking values $j=0,1$

I separate my data into samples with fixed values of covariates X_i which includes race/ethnicity, age group, and gender. There are four race/ethnicity: White, Black, Asian and Hispanics.

There are three age groups; Age1, Age2 and Age3 and two gender groups. Covariates are not changing in each sample

2. I use the sample to calculate the bounds; upper and lower.
3. From the sample, I randomly re-sample with replacement and generate bounds for the new sample.
4. Step 3 is repeated 1000times.
5. With the 1000 lower and upper bounds arranged in increasing order, the 95% (significance level $\alpha = 0.05$) confidence interval is obtained from the 0.05 quantile of the lower bounds distribution and the 0.95 quantile of the arranged upper bounds distribution.

These are the Manski et al. (1992) bounds where $L(-)$ is the α -quantile ($\alpha = 0.05$) of the bootstrap distribution of L^* (bootstrapped lower bounds) and $U(+)$ is the $(1-\alpha)$ quantile of the bootstrap distribution of U^* (bootstrapped upper bound). Basically, the 1000 lower bounds from the replication are arranged in increasing order and L^* is the 50th while U^* is the 950th when the 1000 upper bounds from the replication are arranged in increasing order.

The Bonferroni confidence interval is an overall or family confidence interval. If we are forming m confidence intervals for m distributions, and we want the simultaneous/overall confidence level to be $1-\alpha$, then we must choose the individual confidence level to be $1-(\alpha/m)$ for each of the m distributions. Since I have two distributions (lower bound and upper bounds) that is why each distribution is estimated at confidence level $1-(\alpha/2)$. I calculated the Bonferroni confidence interval (CI), which is constructed by first calculating the 1000 bootstrap upper and lower bounds. I want the simultaneous confidence level to be 95% (significance level $\alpha = 0.05$). To ensure coverage of the bound estimates, one-sided confidence interval of the lower bounds, and of the upper bounds with coverage probability of 97.5% ($1-\alpha/2$), is reported picking the 25th as the $\alpha/2$ -quantile of

the bootstrap distribution of L^* (bootstrapped lower bounds), and when the 1000 replicated upper bounds are arranged in increasing order, the 975th as the $(1-\alpha/2)$ quantile of the bootstrap distribution of U^* (bootstrapped upper bound). The Bonferroni CI is equal to or bounding the Manski CI. To get overall coverage of 95%, both lower and upper bounds are calculated at 97.5 % confidence level, so $0.975*0.975=0.95$.

3.7.2 Non-Parametric Bounds Estimation

I used the 2009 data of the Medical Expenditure Panel Survey (MEPS) for this estimation. I used only one year of data in order to eliminate variation across years. The treatment variable (D) is 1 if an individual finished high school and 0 otherwise. The outcomes Y are also binary. Outcomes considered are NSMOKE (if an individual does not currently smoke), EXER (if an individual exercises vigorously at least three times a week), NOBESE (if an individual is not obese BMI<30), NDIAB (if an individual is not diagnosed with diabetes mellitus), Good (if an individual reports at least good health status) and excellent-SRH (if an individual reports excellent health status). To control for variation across age, the data is divided into three groups: AGE1 (25-44 years old), AGE2 (45-64 years old) and AGE3 (65-85 years old). I also controlled for race/ethnicity and gender. To interpret the results, I examine the estimated Manski bounds [L,U]. If zero lies within the bounded CI, I must conclude that there is no effect of the treatment. If the bounds lie above (below) zero, there is a positive (negative) effect.

To run the analyses for non-parametric estimates, the data is aggregated by gender, age group, education, and race/ethnicity. Table 3.30 presents the summary statistics of these groups. There are 12111 observations, 6708 women and 5403 men. Some of the aggregated groups have very small observations and I could not estimate CATE for them.

Table 3.30: Summary Statistics for Non-parametric Method by Schooling and by Non-Smoking Status

Female Age Group	Schooling					Smoking							
	Educ	total	white	Black	Asian	Hispanic	Age Group	Educ	total	white	Black	Asian	Hispanic
Age1	H	2311	1118	512	199	482	Age1	S	479	297	112	13	57
	NH	429	94	71	9	255		NS	2261	915	471	195	680
		2740	1212	583	208	737			2740	1212	583	208	737
Age2	H	2204	1317	473	140	274	Age2	S	470	280	130	6	54
	NH	517	136	112	19	250		NS	2251	1173	455	153	470
		2721	1453	585	159	524			2721	1453	585	159	524
Age3	H	869	649	122	51	47	Age3	S	89	60	19	1	9
	NH	378	160	104	20	94		NS	1158	749	207	70	132
		1,247	809	226	71	141			1,247	809	226	71	141
		6,708	3,474	1,394	438	1,402			6,708	3,474	1,394	438	1,402
Male													
Age1	H	1766	929	308	156	373	Age1	S	496	269	94	22	111
	NH	436	109	48	5	274		NS	1706	769	262	139	536
		2202	1038	356	161	647			2202	1038	356	161	647
Age2	H	1873	1141	344	138	250	Age2	S	523	300	128	20	75
	NH	404	109	65	14	216		NS	1754	950	281	132	391
		2277	1250	409	152	466			2277	1250	409	152	466
Age3	H	684	521	79	39	45	Age3	S	113	71	26	2	14
	NH	240	93	58	11	78		NS	811	543	111	48	109
		924	614	137	50	123			924	614	137	50	123
		5403	2902	902	363	1236			5403	2902	902	363	1236

H- Individuals with high school diploma, NH- Individuals with no high school diploma, S- Smoker and NS- Non smoker

Table 3.31 shows the results of the estimate bounds for the average treatment effect (ATE) of high school graduation on being a non-smoker. The results indicate that graduating from high school decreases the probability of not smoking for Asian men and women in AGE2 and for Hispanic women in AGE1. The probability is between [-0.37, -0.01]. There is no conclusive effect for all the other groups.

Table 3.31: ATE of High School Graduation on Non-Smoking Behavior

Bounds	Nonparametric Manski Bounds				Bonferroni [L,U]
	(L-)	L	U	(U+)	
Female: Age group					
white					
Age 1	-0.25	-0.24	0.35	0.43	[-0.26 0.45]
Age 2	-0.22	-0.20	0.27	0.35	[-0.23 0.37]
Age 3	-0.26	-0.23	0.03	0.08	[-0.26 0.08]
Black					
Age 1	-0.22	-0.20	0.33	0.43	[-0.23 0.46]
Age 2	-0.30	-0.27	0.19	0.27	[-0.31 0.29]
Age 3	-0.51	-0.46	0.02	0.08	[-0.52 0.09]
Asian					
Age 1	-0.13	-0.10	0.05	0.25	[-0.14 0.31]
Age 2	-0.16	-0.12	0.14	0.30	[-0.18 0.33]
Age3	-0.39	-0.30	-0.02	0.00	[-0.41 0.00]
Hispanic					
Age 1	-0.41	-0.37	-0.01	0.02	[-0.41 0.03]
Age 2	-0.52	-0.48	0.00	0.05	[-0.52 0.05]
Age 3	-0.72	-0.65	0.00	0.07	[-0.73 0.08]
Male: Age group					
white					
Age 1	-0.26	-0.24	0.37	0.45	[-0.27 0.46]
Age 2	-0.26	-0.24	0.29	0.38	[-0.26 0.39]
Age 3	-0.25	-0.22	0.05	0.13	[-0.25 0.14]
Black					
Age 1	-0.30	-0.26	0.30	0.43	[-0.31 0.45]
Age 2	-0.37	-0.33	0.16	0.27	[-0.38 0.29]
Age 3	-0.45	-0.38	0.15	0.27	[-0.45 0.30]
Asian					
Age 1	-0.21	-0.16	0.07	0.41	[-0.22 0.53]
Age 2	-0.22	-0.17	0.17	0.39	[-0.22 0.45]
Age 3	-0.36	-0.26	-0.05	0.00	[-0.38 0.00]
Hispanic					
Age 1	-0.46	-0.43	0.04	0.09	[-0.47 0.10]
Age 2	-0.51	-0.47	0.01	0.07	[-0.52 0.07]
Age 1	-0.65	-0.57	0.07	0.16	[-0.66 0.17]

In Table 3.32, most of the results are inconclusive because of the range of the bounds. I can only make inferences regarding Hispanic women in group AGE2. High school graduation reduces the probability that these individuals age 45-64 years will exercise regularly by percentage points between [-0.52, -0.04].

Table 3.32: ATE of High School Graduation on Exercising

Bounds	Nonparametric Manski Bounds				Bonferroni
	(L-)	L	U	(U+)	[L,U]
Female: Age group					
	white				
Age 1	-0.42	-0.4	0.08	0.18	[-0.42 0.19]
Age 2	-0.43	-0.41	0.17	0.25	[-0.44 0.27]
Age 3	-0.47	-0.44	0.2	0.26	[-0.48 0.28]
Black					
Age 1	-0.52	-0.48	0	0.1	[-0.52 0.13]
Age 2	-0.54	-0.5	0.07	0.16	[-0.54 0.17]
Age 3	-0.47	-0.42	0.18	0.28	[-0.48 0.29]
Asian					
Age 1	-0.45	-0.4	0.38	0.61	[-0.47 0.63]
Age 2	-0.44	-0.38	0.07	0.28	[-0.46 0.32]
Age 3	-0.55	-0.45	0.07	0.3	[-0.58 0.33]
Hispanic					
Age 1	-0.5	-0.47	0.05	0.12	[-0.51 0.13]
Age 2	-0.48	-0.44	0.11	0.18	[-0.49 0.19]
Age 3	-0.42	-0.35	0.21	0.36	[-0.43 0.39]
Male: Age group					
	white				
Age 1	-0.38	-0.36	0.05	0.13	[-0.39 0.15]
Age 2	-0.41	-0.39	0.21	0.29	[-0.41 0.30]
Age 3	-0.44	-0.41	0.19	0.28	[-0.45 0.30]
Black					
Age 1	-0.38	-0.33	0.14	0.27	[-0.38 0.29]
Age 2	-0.49	-0.45	0.06	0.16	[-0.49 0.18]
Age 3	-0.43	-0.37	0.26	0.4	[-0.45 0.43]
Asian					
Age 1*					
Age 2	-0.45	-0.38	0.19	0.44	[-0.46 0.48]
Age 3	-0.48	-0.36	0.28	0.55	[-0.50 0.60]
Hispanic					
Age 1	-0.49	-0.46	0.06	0.13	[-0.50 0.15]
Age 2	-0.55	-0.52	-0.04	0.03	[-0.56 0.05]
Age 3	-0.55	-0.48	0.07	0.23	[-0.57 0.26]

The treatment effect of graduating high school on the probability of not being obese is shown in Table 3.33. It shows that for men, Asian in AGE2, and Hispanic in AGE3, graduating high school decreases the probability of not being obese between [-0.57 -0.02]. Hispanic women of all age groups, White-NH women in AGE3, and Black women in AGE1 and AGE3 experience a decrease in the probability of not being obese ranging between [-0.62 -0.05]. The effect on other groups could not be determined.

Table 3.34 reports that Hispanic men 25-44 years old experience a decrease in the probability of not being diabetic. Black women in AGE3 and Asian women in AGE1 and AGE2 also see a decrease in the probability of not being diabetic. For other groups, the result is inconclusive.

Table 3.35 has the treatment effect of high school graduation on a respondent reporting his or her health as excellent. Estimated effects for most races and ethnicities are inconclusive because of the range of the bound. Only Asian women in groups AGE2 and AGE3, and Black men in group AGE3 see a reduced probability ([-0.72, -0.04] and [-0.63, -0.13], respectively) of declaring excellent health status. Table 3.36 shows the treatment effect of high school graduation on a respondent reporting his or her health as at least good. The results show that for all age groups and, race/ethnicity groups, the effect of graduating high school on reporting at least good health can not be determined because of the range of the estimates.

Table 3.37 shows the effect of smoking on the probability that a respondent will report excellent health status. White-NH men and women are less likely to declare an excellent SRH due to smoking [-0.46, -0.08]. Black women in groups AGE2 and AGE3 as well as Black men in groups AGE1 and AGE2 are less likely to report excellent SRH if they smoke, with probabilities [-0.34, -0.02] and [-0.43, -0.04], respectively. Hispanic men and women in group AGE1 along with men in group AGE3 are less likely to report excellent health if they smoke.

Table 3.33: ATE of High School Graduation on NOBESE

Bounds	Nonparametric Manski Bounds				Bonferroni
	(L-)	L	U	(U+)	[L,U]
Male: Age group					
white					
Age 1	-0.34	-0.32	0.15	0.24	[-0.35 0.25]
Age 2	-0.36	-0.34	0.21	0.27	[-0.37 0.29]
Age 3	-0.36	-0.33	0.12	0.19	[-0.36 0.20]
Black					
Age 1	-0.48	-0.45	0.07	0.17	[-0.49 0.20]
Age 2	-0.52	-0.49	0.02	0.11	[-0.53 0.12]
Age 3	-0.51	-0.46	0.06	0.17	[-0.52 0.19]
Black					
Age 1	-0.11	-0.07	0.08	0.28	[-0.11 0.34]
Age 2	-0.23	-0.18	-0.02	0.08	[-0.23 0.10]
Age 3	-0.38	-0.30	0.01	0.11	[-0.39 0.14]
Hispanic					
Age 1	-0.47	-0.43	0.06	0.12	[-0.47 0.13]
Age 2	-0.52	-0.48	0.03	0.10	[-0.52 0.11]
Age 3	-0.64	-0.57	-0.03	0.10	[-0.65 0.12]
Female: Age group					
white					
Age 1	-0.35	-0.32	0.08	0.16	[-0.35 0.18]
Age 2	-0.40	-0.37	0.05	0.13	[-0.40 0.15]
Age 3	-0.38	-0.35	-0.05	0.03	[-0.38 0.05]
Black					
Age 1	-0.47	-0.43	0.01	0.14	[-0.48 0.16]
Age 2	-0.43	-0.39	0.09	0.20	[-0.44 0.22]
Age 3	-0.50	-0.43	0.07	0.20	[-0.52 0.23]
Black					
Age 1	-0.24	-0.18	-0.15	-0.10	[-0.24 -0.10]
Age 2	-0.20	-0.15	0.13	0.32	[-0.20 0.36]
Age 3	-0.48	-0.36	-0.18	-0.08	[-0.50 -0.07]
Hispanic					
Age 1	-0.55	-0.52	-0.09	-0.03	[-0.56 -0.02]
Age 2	-0.56	-0.52	-0.05	0.02	[-0.56 0.03]
Age 3	-0.69	-0.62	-0.12	0.02	[-0.70 0.05]

Table 3.34: ATE of High School Graduation on NDIAB

Bounds	Nonparametric Manski Bounds				Bonferroni
	(L-)	L	U	(U+)	[L ,U]
Male: Age group					
White					
Age 1	-0.11	-0.10	0.01	0.04	[-0.11 0.05]
Age 2	-0.16	-0.15	0.11	0.17	[-0.17 0.18]
Age 3	-0.31	-0.28	0.07	0.13	[-0.31 0.14]
Black					
Age 1	-0.18	-0.16	0.06	0.12	[-0.19 0.13]
Age 2	-0.30	-0.27	0.08	0.16	[-0.31 0.17]
Age 3	-0.49	-0.43	0.11	0.21	[-0.50 0.23]
Asian					
Age 1	-0.09	-0.06	0.09	0.31	[-0.10 0.35]
Age 2	-0.23	-0.18	0.07	0.23	[-0.24 0.27]
Age3	-0.45	-0.35	0.02	0.22	[-0.46 0.26]
Hispanic					
Age 1	-0.40	-0.37	-0.02	0.01	[-0.40 0.01]
Age 2	-0.49	-0.45	0.06	0.12	[-0.49 0.13]
Age 3	-0.55	-0.48	0.19	0.31	[-0.56 0.33]
Female: Age group					
White					
Age 1	-0.14	-0.12	0.01	0.04	[-0.14 0.05]
Age 2	-0.19	-0.17	0.04	0.10	[-0.19 0.11]
Age 3	-0.31	-0.28	0.06	0.14	[-0.30 0.15]
Black					
Age 1	-0.20	-0.16	0.00	0.05	[-0.20 0.07]
Age 2	-0.30	-0.27	0.03	0.12	[-0.31 0.14]
Age 3	-0.54	-0.47	-0.01	0.12	[-0.55 0.14]
Asian					
Age 1	-0.13	-0.09	-0.06	-0.03	[-0.14 -0.03]
Age 2	-0.24	-0.19	-0.04	0.09	[-0.26 0.12]
Age 3	-0.42	-0.32	0.20	0.48	[-0.44 0.55]
Hispanic					
Age 1	-0.46	-0.42	0.01	0.03	[-0.47 0.04]
Age 2	-0.51	-0.47	0.00	0.06	[-0.52 0.07]
Age 3	-0.56	-0.49	0.13	0.27	[-0.57 0.29]

Table 3.35: ATE of High School Graduation on Excellent SRH

Bounds	Nonparametric Manski Bounds				Bonferroni
	(L-)	L	U	(U+)	[L,U]
Female: Age group					
White					
Age 1	-0.68	-0.65	0.21	0.25	[-0.68 0.26]
Age 2	-0.71	-0.69	0.18	0.21	[-0.72 0.22]
Age 3	-0.7	-0.67	0.11	0.15	[-0.71 0.16]
Black					
Age 1	-0.72	-0.68	0.03	0.11	[-0.72 0.13]
Age 2	-0.74	-0.7	0.09	0.14	[-0.74 0.15]
Age 3	-0.58	-0.53	0.01	0.06	[-0.59 0.07]
Asian					
Age 1	-0.67	-0.62	0.14	0.39	[-0.68 0.41]
Age 2	-0.78	-0.72	-0.09	0.09	[-0.79 0.11]
Age 3	-0.79	-0.7	-0.04	0.07	[-0.80 0.09]
Hispanic					
Age 1	-0.58	-0.55	0.09	0.14	[-0.59 0.15]
Age 2	-0.52	-0.48	0.08	0.12	[-0.52 0.13]
Age 3	-0.38	-0.32	0.09	0.18	[-0.40 0.20]
Male: Age group					
white					
Age 1	-0.66	-0.63	0.15	0.21	[-0.66 0.22]
Age 2	-0.72	-0.7	0.15	0.19	[-0.72 0.21]
Age 3	-0.73	-0.7	0.09	0.15	[-0.73 0.16]
Black					
Age 1	-0.66	-0.62	0.06	0.16	[-0.67 0.17]
Age 2	-0.76	-0.73	0.05	0.12	[-0.77 0.13]
Age 3	-0.69	-0.63	-0.13	-0.05	[-0.71 0.03]
Asian					
Age 1					
Age 2	-0.77	-0.72	0.15	0.26	[-0.78 0.27]
Age 3	-0.84	-0.74	0.05	0.12	[-0.86 0.14]
Hispanic					
Age 1	-0.54	-0.51	0.04	0.1	[-0.55 0.11]
Age 2	-0.54	-0.5	0.04	0.1	[-0.55 0.11]
Age 3	-0.46	-0.38	0	0.08	[-0.47 0.10]

Table 3.36: ATE of High School Graduation on Good SRH

Bounds	Nonparametric Manski Bounds				Bonferroni
	(L-)	L	U	(U+)	[L,U]
Female: Age group					
white					
Age group					
Age 1	-0.2	-0.18	0.24	0.29	[-0.20 0.30]
Age 2	-0.21	-0.19	0.08	0.14	[-0.21 0.14]
Age 3	-0.17	-0.15	0.2	0.25	[-0.17 0.25]
Black					
Age 1	-0.29	-0.26	0.25	0.33	[-0.30 0.34]
Age 2	-0.27	-0.24	0.19	0.27	[-0.28 0.28]
Age 3	-0.21	-0.19	0.25	0.32	[-0.22 0.34]
Asian					
Age 1	-0.24	-0.19	0.23	0.41	[-0.25 0.45]
Age 2	-0.15	-0.11	0.31	0.53	[-0.15 0.56]
Age 3	-0.15	-0.12	0.09	0.23	[-0.15 0.26]
Hispanic					
Age 1	-0.47	-0.43	0.13	0.19	[-0.47 0.20]
Age 2	-0.46	-0.43	0.07	0.11	[-0.47 0.12]
Age 3	-0.45	-0.42	0.07	0.1	[-0.46 0.11]
Male: Age group					
white					
Age 1	-0.15	-0.14	0.17	0.25	[-0.16 0.26]
Age 2	-0.2	-0.18	0.23	0.3	[-0.20 0.31]
Age 3	-0.27	-0.25	0.18	0.25	[-.28 0.26]
Black					
Age 1	-0.35	-0.33	0.16	0.22	[-0.36 0.23]
Age 2	-0.28	-0.25	0.22	0.29	[-0.28 0.30]
Age 3	-0.27	-0.25	0.09	0.15	[-0.28 0.16]
Asian					
Age 1	-0.29	-0.24	0.12	0.23	[-0.30 0.26]
Age 2	-0.16	-0.13	0.25	0.39	[-0.17 0.42]
Age 3	-0.16	-0.13	0.17	0.31	[-0.17 0.35]
Hispanic					
Age 1	-0.45	-0.42	0.18	0.23	[-0.45 0.25]
Age 2	-0.41	-0.38	0.1	0.14	[-0.42 0.15]
Age 3	-0.4	-0.38	0.12	0.15	[-0.40 0.16]

Table 3.37: ATE of Smoking on Excellent SRH

Bounds	Nonparametric Manski Bounds				Bonferroni
	(L-)	L	U	(U+)	[L ,U]
Female: Age group					
White					
Age 1	-0.49	-0.46	-0.2	-0.16	[-0.49 -0.15]
Age 2	-0.39	-0.37	-0.11	-0.07	[-0.39 -0.06]
Age 3	-0.24	-0.22	-0.08	-0.01	[-0.25 0.00]
Black					
Age 1	-0.37	-0.34	0.01	0.09	[-0.38 0.11]
Age 2	-0.34	-0.31	-0.06	0.01	[-0.35 0.00]
Age 3	-0.19	-0.15	-0.02	0.08	[-0.19 0.11]
Asian					
Age 1	-0.46	-0.4	-0.22	-0.03	[-0.47 0.02]
Age 2					
Age 3					
Hispanic					
Age 1	-0.28	-0.26	-0.07	0.01	[-0.29 0.03]
Age 2	-0.23	-0.2	0.03	0.11	[-0.23 0.13]
Age 3	-0.17	-0.12	0.04	0.24	[-0.18 0.30]
Male: Age group					
white					
Age 1	-0.47	-0.44	-0.1	-0.05	[-0.47 0.04]
Age 2	-0.44	-0.41	-0.14	-0.1	[-0.44 -0.09]
Age 3	-0.31	-0.27	-0.08	-0.01	[-0.31 -0.00]
Black					
Age 1	-0.48	-0.43	-0.04	0.05	[-0.49 0.07]
Age 2	-0.44	-0.4	-0.08	-0.02	[-0.45 -0.01]
Age 3	-0.28	-0.23	0.04	0.17	[-0.30 0.20]
Asian					
Age 1	-0.52	-0.45	-0.18	0.26	[-0.78 0.27]
Age 2	-0.34	-0.28	-0.01	0.16	[-0.36 0.18]
Age 3					
Hispanic					
Age 1	-0.4	-0.37	-0.06	0.02	[-0.41 0.04]
Age 2	-0.32	-0.29	0.03	0.11	[-0.33 0.13]
Age 3	-0.24	-0.18	-0.07	-0.03	[-0.25 -0.03]

Due to the low number of observations, results for some of the age groups could not be estimated. The range of the bounds also produced inconclusive results for many aspects of the theory. For sensitivity analysis and to investigate if having more observations would improve the results, I pooled three years of Medical Expenditure Panel Survey (MEPS) data (2004, 2005 and 2006) and repeated the analysis. By pooling data for three years, I was able to control for income as well as the other variables that I controlled for in the analysis with a single year of data.⁵ Many of the estimates of the effect of education on health outcomes still did not yield conclusive results, but the effect of smoking on reporting excellent health is consistent when one year of data and the pooled data are used. Many of the groups experience a negative impact of smoking on declaring excellent SRH. I also estimated a semi-parametric method using the pooled data for three years.

3.7.3 Semi-Parametric Bounds Estimation

The procedure for the semi-parametric method is similar to that of the non-parametric. Because I can control for more covariates, I included income in the covariate. Income has three categories: High Mid and Low. First I run a probit regression of the health outcomes, health behavior and self-reported health on the covariates and I also included dummy variables to control for two of the three data years.⁶ The conditional expectation from the probit model is used to calculate the bounds. Again I resample my data with replacement, run the probit analysis, obtain the conditional expectation and then generate the bounds. Repeat the resampling a 1000 times and calculate the bounds. The process to obtain the confidence interval is as explained above and I report the Manski and Bonferroni confidence intervals. The lower and upper bounds of CATE are the same as in equations (3.21) and (3.22). The probabilities of being in the treatment group $P(D_i = 1|X)$, The

⁵Results are in Appendix B, Tables B.50 to Table B.55.

⁶Results for the semi-parametric method are in Appendix B, Tables B.44 to Table B.49.

probability of the potential outcome given that the individual is in the treatment group $P(Y_{1i} = 1|X, D_i = 1)$, and The probability of the potential outcome given that the individual is in the control group $P(Y_{0i} = 1|X, D_i = 0)$ are obtained from the following probit models:

$$\begin{aligned}\hat{P}(D_i = 1|X) &= \Phi[\hat{\alpha}_0 + \hat{\alpha}_1 X] \\ \hat{P}(D_i = 0|X) &= 1 - \hat{P}(D_i = 1|X)\end{aligned}\quad (3.23)$$

and

$$\begin{aligned}\hat{P}(Y_{1i}|X, D_i = 1) &= \Phi[\hat{\beta}_0 + \hat{\beta}_1 X + \hat{\beta}_2] \\ \hat{P}(Y_{0i}|X, D_i = 0) &= \Phi[\hat{\beta}_0 + \hat{\beta}_1 X]\end{aligned}\quad (3.24)$$

The treatment D is one if the respondent graduated high school and zero otherwise. The vector of individual characteristics X include the variables gender, race/ethnicity, age groups, income level and data year. The lower bound of the CATE is calculated as

$$= \Phi[\hat{\beta}_0 + \hat{\beta}_1 X + \hat{\beta}_2] \Phi[\hat{\alpha}_0 + \hat{\alpha}_1 X] - \Phi[\hat{\beta}_0 + \hat{\beta}_1 X] [1 - \Phi[\hat{\alpha}_0 + \hat{\alpha}_1 X]] - \Phi[\hat{\alpha}_0 + \hat{\alpha}_1 X] \quad (3.25)$$

and the upper bound is

$$= \Phi[\hat{\beta}_0 + \hat{\beta}_1 X + \hat{\beta}_2] - \Phi[\hat{\beta}_0 + \hat{\beta}_1 X] \quad (3.26)$$

These conditional probabilities are used to generate upper and lower bounds following the procedure explained above to obtain the bounds and the 95% confidence interval follow the process explained earlier. Comparison of the results from these two methods leads to the same conclusions: Education reduces the probability of smoking, the probability of being obese, and the probability

of being diabetic. The results also confirm that education impacts SRH indirectly through health behaviors.

3.8 Conclusion

The results from the parametric methods indicate that education is significantly related to SRH and that this gradient varies by race. They also show that education is significantly related to health behaviors and health outcomes and that these associations vary by gender and that there is a significant indirect association between health behaviors and SRH.

Because these estimated relationships may be biased or inconsistent due to omitted variable and or endogeneity problems and do not establish a causal effect of education on health behavior and health outcomes, I also use non-parametric and semi-parametric methods of estimation. These provide a plausible causal interpretation of the effect of graduating from high school on SRH, health behaviors, and health outcomes. Although the estimates are interval estimates rather than point estimates, they are similar to confidence intervals constructed for point estimates. Both methods confirm that health behaviors have causal effects on SRH, but that education does not directly affect the probability of self-reporting excellent health. I am unable to conclude that there is an indirect effect of education on health behaviors because zero falls within the estimated bounds.

Similar to prior research (Silles (2009); Groot and Maassen Van Den Brink (2007); Arendt (2005); Cutler and Lleras-Muney (2010); and Ding et al. (2009)), the parametric results from this research support the hypothesis that an individual's education is highly correlated to their SRH, their health behaviors and health outcomes. I find that some of these associations vary by race and ethnicity. My nonparametric results support the hypothesis that education directly impacts

health behavior and health behavior directly affects SRH. Most research using observations of respondents in the early twentieth century cannot analyze racial disparity because of the small number of observations for minority groups. However, Ding et al. (2009), Cutler and Lleras-Muney (2010) and Berger and Leigh (1989) are among the few studies that analyzed the effect of education health by race and ethnicity and they found evidence of disparity.

The parametric estimation in this paper is not able to estimate a causal relation due to lack of a good instrumental variable for education. I was only able to establish a strong association between health behavior and health outcome. The non-parametric and semi-parametric methods permit estimation of causal effects, but also had limitations. The non-parametric method limits the number of control variables because as more are added, the observations per cell decrease. The semi-parametric method was used to handle the limitation of the non-parametric estimation because it does not limit the number of control variables.

My findings suggest that policy-makers should understand the effects of education on health behaviors and health outcomes in designing health policy. Further, policy-makers should recognize that the impact of education on health behaviors and health outcomes may be significantly larger for members of minority groups. This provides support for larger educational expenditures for these groups.

CHAPTER 4

HEALTH STATUS AND OCCUPATIONAL CHOICE: A STUDY OF EARLY-ONSET DEPRESSION¹

4.1 Introduction

Depression is a psychological disorder that affects millions of people around the globe. In a report of the World Health Organization, in 2011 depression was "the third leading cause of the global burden of disease" and is projected to be the top cause by 2030.² Because depression affects an individual's mood, causes anxiety, restlessness, an inability to concentrate, lack of confidence, and other behavioral problems, it impacts individuals' ability to function, and specifically to succeed in school and in the workforce.

When the first depressive episode occurs prior to adulthood (18 to 21 years of age), it is termed "early-onset depression" (early-onset depression). The National Institute of Mental Health reports that in 2014, 11.4 % of adolescents aged 12 to 17 had at least one episode of major depression in the preceding year (Center for Behavioral Health Statistics and Quality, 2015). In addition to the suffering caused by the disorder, early-onset depression may impede adolescents' ability to succeed in school. Studies indicate that young people with major depression have lower educational attainment and are more likely to drop out of high school (Berndt et al. (2000); Jayakody et al. (1998); Wilcox-Gök et al. (2004)). The effect on schooling may indirectly restrict occu-

¹Co-authored with Dr. Virginia Wilcox-Gök.

²World Health Organization (2011).

pational choices and adult earnings. While many studies have considered the impact of major depression on adult earnings, few have considered the intermediate effect on occupational choice and type of employment for those individuals who are employed. In an effort to better understand the underlying path leading to the effect on adult earnings, in this paper we examine the impact of early-onset depression on adult occupation and job characteristics. We examine whether individuals diagnosed with major depression as adolescents may select occupations that accommodate any continuing problems.

This topic is of policy importance: The Americans with Disabilities Act (ADA) is intended to protect people with disabilities from unfair labor practices once these individuals are in the labor market. However, its impact will be mitigated if individuals with disabilities self-select into certain occupations because of their need for accommodations such as flexible work schedules. For example, Peng et al. (2013) reported that major depression increases annual work loss days by about 1.4 days (33 percent). Our goal is to examine whether early-onset depression impacts adult occupational choice and type of employment.

4.2 Literature Review

Several studies have focused on the impact of major depression on labor market outcomes of adults (Berndt et al. (1998); Cseh (2008); Ettner et al. (1997); Fletcher (2013); Marcotte et al. (2000); Marcotte and Wilcox-Gök (Marcotte and Wilcox-Gök); Peng et al. (2013)). Most of these examine contemporaneous impacts or rely on respondent recall of age of onset. However, Fletcher (2013) examined the longer term impact of early-onset depression on adult labor market outcomes. Using data drawn from Add Health, a national longitudinal sample, the author reports "reductions in labor force attachment of approximately 5% and earnings reductions of approximately 15% for

individuals with depressive symptoms as an adolescent" (Fletcher (2013, p. 26)).

In comparison, there are few studies focusing on the impact of early-onset depression on educational attainment. Berndt et al. (2000) discovered that the effect of early-onset depression on educational attainment is more devastating for women than for men and that effective treatment can lead to substantial human capital gain and economic benefits. The authors report that

for those who attended college, early-onset major depressive disorder negatively affected the probability of graduating, particularly for women. Women with early-onset major depressive disorder were about half as likely to obtain a college degree as their older-onset counterparts. Women with early-onset major depressive disorder were half as likely as those with late-onset depression to seek postgraduate training. (Berndt et al. (2000, p. 943))

Fletcher (2008) similarly found that adolescent depression was related to high school completion, college enrollment, and type of college enrolled in by young women, but not young men. In contrast, Wilcox-Gök et al. (2004) reported that "onset of depression prior to the age at which school attendance is no longer compulsory significantly increases the probability of high school dropout among men, but not among women" (p.46). While these studies point to significant negative effects of early-onset depression, the contrasting findings suggest that there may be considerable gender and age variation in the way that depression is manifested and/or treated.

However, research has established that workers self-select into jobs based on their personality traits and the job attributes. For example, using data for the United States and France, Krueger and Schkade (2008) found that extroverts tend to sort into jobs where they highly interact with others. An opposing hypothesis may be that employers search and fill vacancies by choosing individuals with the personality to do the job, but the authors argue that compensating wage differentials for work attributes are small or zero, which suggests that workers self-sort into jobs.

To our knowledge, no studies have considered the impact of early-onset depression on occupational choice, yet this is likely to be an important contributor to the negative impacts on labor market outcomes attributed to early-onset depression. To assess the impact of adolescent depression on adult occupational choices, we examine the impact on several measures of occupation and job characteristics in the National Comorbidity Survey.

4.3 Theoretical Model

We use a simple random utility model of occupational choice in which a representative individual i chooses among occupations j .³ The individual's random utility function is assumed to take the form

$$U_{ij} = V_{ij} + e_{ij}, \quad i = 1, \dots, I \quad j = 0, \dots, J \quad (4.1)$$

V_{ij} is the deterministic component representing the average utility from employment in an occupation j and e_{ij} is the nondeterministic component representing random deviation from the population mean.

$$V_{ij} = V(w_{ij}, X_i) \quad (4.2)$$

³Similar models, developed from the work of McFadden et al. (1973), Manski and Lerman (1977), and Hausman and Wise (1978), have long been used to model occupational choice (e.g., Filer (1986); Gill (1989); Howard and Prakash (2012)).

where w_{ij} measures the market wage of individual i in occupation j and X_i is a vector of individual i 's characteristics which includes human capital. A common parametrization of the random utility function is

$$V_{ij} = \alpha_1 w_{ij} + \alpha_2 X_i + \varepsilon_{ij} \quad (4.3)$$

The market wage for individual i in occupation j is expressed as

$$w_{ij} = \beta_{1j} X_i + \beta_{2j} H_i + \mu_{ij} \quad (4.4)$$

where H_i is an indicator of health, including major depression. Substituting equation (4.4) into equation (4.3) yields a reduced form equation for the individual's utility function:

$$V_{ij} = \gamma_{1j} X_i + \gamma_{2j} H_i + v_{ij} \quad (4.5)$$

Because early-onset major depressive disorder is likely to disrupt human capital investment, level of education obtained may be lower for these individuals, other things equal, than among individuals without the disorder. This is consistent with prior findings indicating that early-onset depression lowers schooling attainment. Depressive disorder may also have an impact on the wage (w_{ij}) individuals earn in particular occupations. We hypothesize that early-onset depression affects individuals' choice of occupation ($\gamma_2 \neq 0$). γ_2 is the relative risk ratio comparing individuals with early-onset depression to those without depression given that the individual chooses occupation $j=j$ over occupation $j=0$. Our goal is to estimate the probability of choosing any particular occupation, and test the significance of our hypothesis on this choice while controlling for other factors influencing occupational choice. Individual i will choose occupation choice $Y_i = j$ if the occupation gives him or her the highest utility.

4.4 Empirical Model

To analyze the effect of early-onset depression on occupational choices, we use several types of employment and occupations as dependent variables of the estimating model. The probability (P_{ij}) that an individual i chooses an occupation j ($Y_i = j$) is expressed as

$$\text{Prob}(Y_i = j) = P_{ij} = \text{Prob}(V_{ij} \geq V_{ik}) \quad \forall j, \quad k \in J, \quad j \neq k \quad (4.6)$$

For our occupational outcomes with multiple categories, we estimate a standard multinomial logit model (MNL):

$$\text{Prob}(Y_i = j) = P_{ij} = \frac{e^{(\gamma_{1j}X_i + \gamma_{2j}H_i)}}{1 + \sum_{j=1}^J e^{(\gamma_{1j}X_i + \gamma_{2j}H_i)}}, \quad j = 0, \dots, J \quad (4.7)$$

The coefficients of all variables for occupation $j=0$ alternative are set equal to zero for model identification. The coefficients of the remaining occupations will be measured relative to occupation $j=0$. The control variable vector X_i includes individual characteristics, including education. The variable H_i includes a binary variable DEPEO indicating whether the individual had early-onset depression. We test whether early-onset depression has a significant effect on the probability of employment and occupation outcomes. For binary outcomes, such as full-time employment and self-employment, the multinomial logit simplifies to logit model. For occupational job characteristics with ordered categories, we estimate an ordered logit model. Because the labor force experiences of men and women tend to differ over the life cycle, all analyses are performed for the combined sample as well as for separate samples of men and women.

We test several hypotheses relating to the relationship between early-onset depressive disorder and adult occupational choices. We estimate the impact of early-onset depression on employment

status, self employment, and characteristics of the chosen occupation. We test whether the number of episodes of depression has a significant effect on choice of occupation, causing individuals to work in occupations that have less stringent requirements; if the age of onset of depression affects the type of occupation chosen as an adult; and whether a longer period since the last episode reduces the effect of early-onset depression on occupational choices.

4.5 Data

For the analysis reported in this paper, we use observations of 3370 respondents in the National Comorbidity Survey (NCS-1). The NCS-1 was a nationally representative mental health survey collected in 1990-1992. Table 4.1 provides definitions of all analytical variables. We analyze our data using two versions of the control group. First we exclude respondents who report being unhealthy (i.e., having "fair" or "poor" self-reported health) to provide a comparison of respondents with early-onset depression with healthy respondents. This is hereafter referred to as the limited sample. A total of 270 observations of unhealthy respondents are dropped. We also conduct our analyses using the full control group with 3640 observations (hereafter referred to as the unlimited sample). Because we find similar results using both subsamples of the data set, we only report the results from the limited sample in the results section. The full results of analyses using data from both samples are reported in Appendix C.

The NCS contains information about major depressive disorder, age at first episode of the disorder, the number of episodes, and how long since the last episode. We use this information to create the following four variables DEPEO, DEPEOA, DEPEPS, and DEPPEC, respectively. DEPEO is a dummy variable indicating that a respondent had an episode of major depression prior to age 22. DEPEOA is the age of the respondent when he or she had the first episode. DEPEPS is the

number of major depressive episodes (lasting more than 2 days) that respondents have had, and DEPREC is months since the last episode. We use DEPEO and DEPEPS to study how early-onset depression (and its intensity) affects occupational choice in comparison to individuals without the disorder. Among individuals with early-onset depression, variables DEPEOA and DEPREC are used to study how the age at first episode and time since last episode affects decisions on occupation, respectively.

Table 4.1: Definitions of Variables

Individual Characteristics		
DEPEO	= 1	if respondent reports depression before age 22, =0 otherwise
DEPEOA		respondent's age at depression early-onset
DEPEPS		Number of major depressive episodes
DEPREC		Months since most recent episode
ALCDLT		Alcohol dependency
DRGDLT		Drug use dependency
GADLT1		Anxiety disorder
AGE		Respondent's years of age
EDUC		Respondent's years of schooling
SEXF	= 1	if respondent is female, =0 otherwise
Northeast	= 1	If individual lives in the Northeast region
Midwest	= 2	If individual lives in the Midwest region
South	= 3	If individual lives in the south region
West	= 4	If individual lives in the west region
COHAB	= 1	If individual cohabit with a partner
White	=	Individual is of non Hispanic white race
Black	=	Individual is of African descend
Hispanic	=	Individual is of Hispanic ethnicity
Occupation Characteristics		
SELFEMP	= 1	If individual is self employed
FULLTIME	= 1	If individual work full time ≥ 35 hours per week
LFP	= 1	Respondent participate in the Labor force
EMPW	= 1	Respondent is working
AVEHRS		Average hours worked per week by occupation
VARHRS		Variance in hours worked per week (AVEHRS)
JOBZONE		Education, experience, and training needed for an occupation
	= 1	Little or No Preparation Needed-Less than High School
	= 2	Some Preparation Needed-High School Diploma
	= 3	Medium Preparation Needed-High School Plus
	= 4	Considerable Preparation Needed-Bachelor's Degree
	= 5	Extensive Preparation Needed-Bachelor's Degree Plus
OCCUP		1970 Occupational codes in only 6 categories
	= 1	Professional Individuals working in professional position
	= 2	Managerial Individuals working in managerial position
	= 3	Sales Individuals working in sales position
	= 4	Clerical Individuals working in clerical position
	= 5	Technician Individuals working in Technical position
	= 6	Laborer/Service Individuals working in service position

First we estimate the effect of early-onset depression on labor force participation (LFP) decision, then we analyze the impact of early-onset depression on getting employment (EMPW) in the labor force. LFP is a binary variable which equals one if the respondent is either employed, unemployed but actively looking for work, and on vacation or maternity leave. Employment (EMPW) is also a binary variable that equals one if the respondent is working and zero otherwise. We also estimate the effect of early-onset depression on employment characteristic and occupational outcomes. The employment status is described by two variables: FULLTIME is a dummy variable indicating that the respondent is employed full-time. SELFEMP is a dummy variable indicating that the respondent reports being self-employed. Other things being equal, we expect individuals with early-onset depression to be less likely to work full-time and more likely to be self-employed.

Occupations are coded using the 1970 Census Bureau Occupation Code. We use two variables to characterize occupations: OCCUP is a categorical variable representing six broad occupations (professional, managerial, sales, clerical, technician, and laborer/service) into which all 984 in the 1970 Census Bureau Occupation Code are grouped. JOBZONE is a categorical variable classifying all 984 in the 1970 Census Bureau Occupation Code into five categories based on the education, experience, and training needed for work in an occupation. A job zone is a group of occupations that have similar educational and on-the-job training requirements. We know that JOBZONE is an ordered categorical variable not only because of the increasing amount of education needed in each succeeding zone but because the job zone is also ranked by how much training time (specific vocational preparation, or SVP) is needed to work in the zone. These SVP rankings are mutually exclusive. Zone 1 (SVP range below <4-needs little or no preparation) requires roughly up to 3 months training. Zone 2 (SVP range 4 to <6-needs some preparation) requires training over 3 months to 1 year. Zone 3 (SVP range 6 to <7-needs medium preparation) requires training over 1 year to 2 years. Zone 4 (SVP range 7 to <8-needs considerable preparation) requires training over 2 years to 4 years. Zone 5 (SVP range 8 and above-needs extensive preparation) requires training over 4 years to 10 years and above. If early-onset depression has an impact on occupation choice,

we would expect to observe that the affected individuals will likely be in non-professional occupations and in occupations requiring lower education and training requirements. We use JOBZONE from the O*NET 19.0 Database and the 1970 Census Bureau Occupation Code to characterize the occupations of NCS respondents into job zones.⁴

Control variables included in the analyses describe individual characteristics of the respondents: The respondent's years of schooling (EDUC) range from 2 through 17. Gender is represented by a dummy variable (FEMALE) with a value of one if the respondent is a woman. The respondent's region of residence is represented by three dummy variables (MIDWEST, SOUTH, WEST), with the Northeast as the reference region. AGE is a variable representing the respondent's age in years.⁵ COHAB is a dummy variable with a value of one if the individual is married with spouse present or otherwise cohabiting with a partner. The reference category includes individuals who are single (never married, widowed, or divorced). Black is a dummy variable with a value of one if the respondent reports being non-Hispanic Black, and Hispanic has a value of one if the respondent reports being Hispanic. The reference category includes respondents who reported being non-Hispanic White or "other." We also control for the following comorbidities of depression: alcohol dependency (ALCDLT), drug use dependency (DRGDLT) and anxiety disorder (GADLT1). All three are dummy variables = 1 if the respondent reports the disorder and zero otherwise.

Table 4.2 provides summary statistics of the study limited sample (excluding respondents from the control group who report fair/poor health). Forty-five percent of respondents in our sample are women. The average age is 33 years and both men and women have approximately 13.5 average years of schooling. A total of 97% of respondents are participating in the labor force, and 95% of respondents are employed. More men than women participate in the labor force, and more are employed than women. Twelve percent of respondents are self-employed, and 73% are working

⁴Complete Job Zone definitions may be found at www.onetonline.org/help/online/zones#zone1. Specific Vocational Preparation (SVP) is another ranking method for job zone that is mutually exclusive-<http://www.onetonline.org/help/online/svp>

⁵We did the analysis with and without AGE, but found little difference in our results, so we present the result without AGE.

full-time. More men report working full-time than women. More women report being in clerical positions and more men report being technicians. Consistent with the literature describing depression, only six percent of men report early-onset major depressive disorder while 12 percent of women report early-onset depression. However, men report a higher number of episodes than women. The average age for early-onset depression is 16 years. The sample averages in Table C.1 in Appendix C are for the unlimited sample (when the reference group is not limited to healthy individuals only); all the averages mimic those in Table 4.2. The averages reported in Table 4.3 describe the differences between individuals with early-onset major depressive disorder and healthy individuals. Sixty-one percent of respondents reporting early-onset major depressive disorder are women, while only 44 percent of health respondents are women. Individuals with early-onset depression appear more likely to be self-employed, are more likely to be employed in professional positions, and are less likely to be employed as technicians.

Table 4.2: Descriptive Statistics By Gender-Control Group Limited to Good Health

Variable		N	Ave	N	Ave	N	Ave
		All		Male		Female	
FULLTIME	Yes	2455	0.73	1541	0.84	914	0.60
SELFEMP2	Yes	394	0.12	246	0.13	148	0.10
OCCUP	Professional	644	0.19	331	0.18	313	0.20
	Managerial	469	0.14	291	0.16	178	0.12
	Sales	216	0.06	102	0.06	114	0.07
	Clerical	626	0.19	132	0.07	494	0.32
	Technician	768	0.23	641	0.35	127	0.08
	Laborer/Service	647	0.19	342	0.19	305	0.20
JOBZONE	Zone 1	252	0.07	147	0.08	105	0.07
	Zone 2	1255	0.37	672	0.36	583	0.38
	Zone 3	883	0.26	445	0.24	438	0.29
	Zone 4	849	0.25	499	0.27	350	0.23
	Zone 5	131	0.04	76	0.04	55	0.04
AGE		3370	33.2	1839	33.0	1531	33.6
EDUC		3370	13.5	1839	13.4	1531	13.5
SEXF	Yes	1531	0.45				
LFP		3370	0.97	1839	0.98	1531	0.95
EMPW		3370	0.95	1839	0.96	1531	0.94
DEPEO		3370	0.09	1839	0.06	1531	0.12
DEPEPS		3370	1.35	1839	1.74	1531	0.87
DEPEOA	Yes	298	15.91	117	15.50	181	16.19
DEPREC		298	2.94	117	3.03	181	2.89
ALCDLT		3370	0.21	1839	0.29	1531	0.12
DRGDLT		3370	0.11	1839	0.13	1531	0.08
GADLT1		3370	0.05	1839	0.05	1531	0.06
R4EG	Northeast	695	0.21	363	0.20	332	0.22
	Midwest	906	0.27	511	0.28	395	0.26
	South	1046	0.31	560	0.30	486	0.32
	West	723	0.21	405	0.22	318	0.21
MARSTAT	COHAB	1887	0.56	1018	0.55	869	0.57
RACE	White	2794	0.83	1539	0.84	1255	0.82
	Black	336	0.10	159	0.09	177	0.12
	Hispanic	240	0.07	141	0.08	99	0.07
N		3370	100	1839	100	1531	100

Table 4.3: Descriptive Statistics For Individuals With Early-Onset Depression

	NCS1 (Limited Control)		NCS1 (Unlimited Control)	
	DEPLT1=1 Ave	=0 Ave	DEPLT1=1 Ave	=0 Ave
OCCF				
Full time =1	0.74	0.73	0.72	0.81
SELFEMP				
SELFEMP =1	0.18	0.11	0.06	0.07
OCC6				
Professional =1	0.24	0.19	0.23	0.19
Managerial=2	0.15	0.14	0.15	0.16
Sales=3	0.07	0.06	0.04	0.04
Clerical=4	0.17	0.19	0.17	0.15
Technician =5	0.17	0.23	0.17	0.24
Laborer/Service=6	0.19	0.19	0.23	0.21
JOBZONE				
JZ =1	0.05	0.08	0.08	0.06
JZ =2	0.33	0.38	0.37	0.38
JZ =3	0.29	0.26	0.25	0.27
JZ =4	0.30	0.25	0.26	0.26
JZ =5	0.04	0.04	0.04	0.04
LRF	0.97	0.97	0.97	0.97
EMPW	0.94	0.95	0.95	0.95
DEPEPS	5.21	0.97	8.50	1.63
DEPEOA	15.92		15.62	
DEPREC	2.94		2.87	
ALCDLT	0.33	0.20	.34	.20
DRGDLT	0.24	0.09	.23	0.09
GADLT1	0.22	0.04	.75	.04
AGE	35.17	33.05	35.26	33.28
EDUC	13.82	13.42	13.72	13.33
SEXF	0.61	0.44	0.71	0.48
COHAB	0.51	0.57	0.51	0.56
White	0.87	0.83	0.64	0.50
Black	0.07	0.10	0.21	0.31
Hispanic	0.06	0.07	0.14	0.19
Northeast	0.21	0.21	0.64	0.50
Midwest	0.26	0.27	0.21	0.31
South	0.25	0.32	0.14	0.19
West	0.29	0.21	0.14	0.19
N	298	3072	337	3303

4.6 Results

We report the analyses using the data set with reference group restricted to healthy individuals (limited control group). This section reports two types of analyses. The first is the impact of DEPEO and DEPEPS on occupation choices using all observations (full sample of limited data set) in the data with the limited control group, while the second is the impact on DEPEOA and DEPREC on the subsample (subsample of limited data set) of respondents with early-onset depression in the sample with the limited control group.

In the top portion of Table 4.4, we report the marginal effects of DEPEO and DEPEPS on the probability of participating in the labor force for the full sample of the limited data set. There is no significant effect of early-onset depression on the decision to participate in the labor force. The more episodes an individual has experienced, the less likely they will participate in the labor force compared to individuals with no episodes or less episodes, but no significant effect was seen for men and women separately. In the bottom portion of the table, the analysis of the effect of DEPEOA and DEPREC on labor force participation (LFP) with the subsample of the limited data set does not yield any significant result. The subsample is small. There are only 298 observations to start with.⁶ No significant effect was observed in the analysis of DEPEOA and DEPREC on labor force participation (LFP) using this subsample.

The effects of DEPEO, DEPEOA, DEPEPS and DEPREC on the probability that an individual will choose employment is reported in Table 4.5. There is no significant effect of DEPEO and DEPEPS on the probability of being employed. The longer the time (months) since the last episode (DEPREC), the more likely that respondents will be employed compared to those respondents with

⁶For a restricted sample of individuals with early-onset depression (subsample of the limited data set), some values of certain binary covariates (Black=1, Hispanic=1, West=1, South=1, and COHAB=1) predict success perfectly, so observations with these values of these covariates listed above (Black, Hispanic, West, and COHAB) were dropped from the logistic regression, and also the covariates were dropped from the remaining sample. Also I could not obtain results for some analysis due to non convergence of my estimate. For details, please see Table C.4a in Appendix C.

more recent episodes. No significant effects were found for men and women separately.

Table 4.4: Marginal Effect of Early-Onset Depression on Labor Force Participation

NCS1 Limited	ALL dy/dx	Men dy/dx	Women dy/dx	ALL dy/dx	Men dy/dx	Women dy/dx	ALL dy/dx	Men dy/dx	Women dy/dx
DEPEO	-0.0007	-0.0005	-0.0009				0.00001	0.0003	-0.0002
(Z)	(-0.07)	(-0.11)	(-0.05)				(0.00)	(0.06)	(-0.01)
DEPEPS				-0.0004*	-0.0001	-0.0006	-0.0004*	-0.0001	-0.0006
(Z)				(-1.86)	(-1.02)	(-1.21)	(-1.86)	(-1.01)	(-1.20)
N	3370	1839	1531	3370	1839	1531	3370	1839	1531
LR(Pr > X ²)	1.1E-08	8.4E-12	0.5263	3.7E-09	5.4E-12	0.4306	8.9E-09	1.5E-11	0.5159
Pseudo R ²	0.0615	0.1974	0.0168	0.0641	0.2000	0.0186	0.0641	0.2000	0.0186
DEPEOA	-4.2E-05	-7.76E-06	-4.2E-04				NA	-0.0001	-0.00004
(Z)	(-6.5E-04)	(-9.3E-04)	(-1.79E-03)				NA	(-0.0010)	(-0.0002)
DEPREC				2.11E-04	7.68E-04	NA	NA	0.0008	-3.2E-05
(Z)				(1.59E-03)	(8.67E-04)	NA	NA	(0.0010)	(-0.002)
N	258	30	66	258	30	NA	NA	30	66
LR(Pr > X ²)	0.1269	0.9654	0.3251	0.1174	0.8626	NA	NA	0.9120	0.4252
PseudoR ²	0.179	0.129	0.1658	0.1823	0.22	NA	NA	0.2266	0.1659

NA: Results not available due to non convergence of estimate. *Z score* statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 4.5: Marginal Effect of Early-Onset Depression on the Probability of Employment

NCS1 Limited	ALL dy/dx	Men dy/dx	Women dy/dx	ALL dy/dx	Men dy/dx	Women dy/dx	ALL dy/dx	Men dy/dx	Women dy/dx
DEPEO	-0.0106	-0.0161	-0.0046				-0.0093	-0.0143	-0.0040
(Z)	(-0.79)	(-0.92)	(-0.23)				(-0.71)	(-0.84)	(-0.20)
DEPEPS				-0.0004	-0.0002	-0.0005	-0.0004	-0.0002	-0.0005
(Z)				(-1.49)	(-0.89)	(-0.74)	(-1.42)	(-0.72)	(-0.73)
N	3370	1839	1531	3370	1839	1531	3370	1839	1531
LR(Pr > X ²)	0.0001	5.5E-07	0.8839	0.0001	6.6E-07	0.8565	0.0001	1.0E-06	0.9010
PseudoR ²	0.0308	0.0846	0.0085	0.0317	0.0838	0.0091	0.0321	0.0854	0.0092
DEPEOA	0.0032	0.0013	3.68E-05				0.0022	0.0011	1.9E-05
(Z)	(1.11)	(0.79)	(1.19E-03)				(0.77)	(0.70)	(0.001)
DEPREC				0.0183*	0.0036	2.17E-04	0.0167*	0.0022	0.0002
(Z)				(1.88)	(0.68)	(9.23E-04)	(1.69)	(0.46)	(0.001)
N	280	108	122	280	108	122	280	108	122
LR(Pr > X ²)	0.7405	0.0646	0.2220	0.5459	0.0773	0.1757	0.5808	0.0877	0.2386
Pseudo R ²	0.0576	0.3370	0.1442	0.0736	0.3254	0.1554	0.0778	0.3422	0.1565

Z score statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

The results from the subsample shown in Table 4.5 also have the same problem of small data set due to dropped observations and dropped covariates as explained above.⁷ No significant effect of DEPEOA on the probability of being employed is observed.

In the top portion of Table 4.6, we report the marginal effects of DEPEO and DEPEPS on the probability of being employed full-time (FULLTIME) for the full sample of the limited data set. The estimated effects indicate that women who report early-onset depression are more likely than women without the disorder to be working full-time. The greater the number of episodes men have had, the less likely they would be employed full-time than men fewer episodes. The results reported in the bottom half of the table for respondents with early-onset depression in the limited data set indicate that a longer time since their last episode (DEPREC), and an older age of onset (DEPEOA) increases the probability that men will work full-time.

Table 4.6: Marginal Effect of Early-Onset Depression on the Probability of Working Full-Time

NCS1	ALL	Men	Women	ALL	Men	Women	ALL	Men	Women
Limited	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
DEPEO	0.0489*	0.0189	0.0740*				0.0518**	0.0270	0.0722*
(Z)	(1.95)	(0.61)	(1.85)				(2.08)	(0.91)	(1.79)
DEPEPS				-0.0013*	-0.0014**	0.0017	-0.0014*	-0.0014**	0.0015
(Z)				(-1.66)	(-2.33)	(0.89)	(-1.80)	(-2.42)	(0.80)
N	3370	1839	1531	3370	1839	1531	3370	1839	1531
LR(Pr > X ²)	4.7E-60	2.13E-24	0.0321	7.1E-60	2.3E-25	0.0651	5.7E-60	6.2E-25	0.0392
Pseudo R ²	0.0797	0.0856	0.0103	0.0795	0.0885	0.0091	0.0805	0.0889	0.0106
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DEPEOA	0.0059	0.0132**	-0.0014				0.0031	0.0107*	-0.0036
(Z)	(0.92)	(2.17)	(-0.15)				(0.48)	(1.77)	(-0.37)
DEPREC				0.490**	0.0512**	0.0310	0.0470**	0.0425*	0.0337
(Z)				(2.27)	(2.22)	(0.97)	(2.13)	(1.85)	(1.03)
N	298	117	181	298	117	181	298	117	181
LR(Pr > X ²)	0.0210	0.2830	0.6531	0.0053	0.2613	0.5676	0.0080	0.1687	0.6399
Pseudo R ²	0.0702	0.1357	0.0377	0.0826	0.1393	0.0417	0.0833	0.1703	0.0423

Z score statistics in parentheses
 * p < 0.05, ** p < 0.01, *** p < 0.001

⁷Covariates Hispanic=1, Black=1, and South=1 were dropped because they predict success perfectly. For details, please see Table C.5a in Appendix C.

Tables 4.7 reports the marginal effects of DEPEO, DEPEOA, DEPEPS and DEPREC on the probability of being self-employed (SELFEMP). Early-onset depression is associated with a higher probability of self-employment for both men and women with the disorder compared to men and women without the disorder, while the number of lifetime episodes (DEPEPS) has no significant effect. Time since last episode (DEPREC) and age of onset (DEPEOA) do not significantly affect the choice of self-employment among respondents with early-onset depression.

Table 4.7: Marginal Effect of Early-Onset Depression on the Probability of Self-Employment

NCS1 Limited	ALL dy/dx	Men dy/dx	Women dy/dx	ALL dy/dx	Men dy/dx	Women dy/dx	ALL dy/dx	Men dy/dx	Women dy/dx
DEPEO (Z)	0.0662*** (2.78)	0.0647* (1.75)	0.0636** (2.18)				0.0664*** (2.78)	0.0686* (1.81)	0.0628** (2.16)
DEPEPS (Z)				0.0001 (0.22)	-0.0003 (-0.38)	0.0005 (0.64)	-0.00004 (-0.08)	-0.0005 (-0.67)	0.0004 (0.48)
N	3370	1839	1531	3370	1839	1531	3370	1839	1531
LR(Pr > X ²)	1.3E-09	4.8E05	0.0010	8.2E-08	0.0002	0.0082	3.2E-09	0.0001	0.0017
Pseudo R ²	0.0274	0.0271	0.0321	0.0234	0.0246	0.0260	0.0274	0.0274	0.0323
DEPEOA (Z)	0.0018 (0.32)	0.0116 (1.18)	-0.0070 (-1.09)				0.0018 (0.32)	0.0117 (1.17)	-0.0071 (-1.09)
DEPREC (Z)				0.0006 (0.03)	0.0048 (0.14)	-0.0025 (-0.11)	-0.0005 (-0.03)	-0.0017 (-0.05)	0.0018 (0.08)
N	298	117	181	298	117	181	298	117	181
LR(Pr > X ²)	0.9294	0.8422	0.6293	0.9340	0.9304	0.7335	0.9556	0.8919	0.7093
Pseudo R ²	0.0205	0.0520	0.0585	0.0201	0.0405	0.0510	0.0205	0.0520	0.0585

Z score statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

In Table 4.8 we report the marginal effects of DEPEO and DEPEPS on the probability of being employed in one of six broad occupational categories (OCCUP). For women, the estimated marginal effects indicate that, although the number of episodes has no significant effect, they are less likely to work in clerical positions if they had early-onset depression than if they don't. Men have a higher probability of choosing service jobs if they experience a higher number of episodes than if they don't. The analysis of the effect of DEPEOA and DEPREC on the probability of being employed in one of six broad occupational categories (OCCUP) has the same problem where some

of the binary covariates perfectly predict success. The multinomial logit model used for this analysis does not automatically drop these affected covariates like the logit model does so we manually dropped the covariates (BLACK, HISPANIC and GADLT1) affected to obtain reliable relative risk ratio.⁸

Table 4.8: Marginal Effect of Early-Onset Depression on Occupation

NCS1		All	Male	Female		All	Male	Female
Limited		dy/dx	dy/dx	dy/dx		dy/dx	dy/dx	dy/dx
Professional	DEPEO	0.0199	0.0280	0.0174	DEPEPS	-0.0007	-0.0004	-0.003
	(Z)	(0.94)	(0.90)	(0.65)		(-0.97)	(-0.41)	(-0.25)
Managerial	DEPEO	0.0198	-0.0133	0.0515	DEPEPS	-0.0001	0.0004	0.0001
	(Z)	(0.69)	(-0.33)	(1.44)		(-0.19)	(0.37)	(0.07)
Sales	DEPEO	0.0045	0.0298	-0.0123	DEPEPS	-0.0007	-0.0037	0.0008
	(Z)	(0.23)	(1.01)	(-0.48)		(-0.86)	(-1.22)	(0.79)
Clerical	DEPEO	-0.0600***	0.0074	-0.1270***	DEPEPS	-0.0002	0.0001	-0.0005
	(Z)	(-2.73)	(0.24)	(-3.07)		(-0.21)	(0.10)	(-0.26)
Technician	DEPEO	-0.0092	-0.0387	0.0066	DEPEPS	-0.0001	0.0010	0.0003
	(Z)	(-0.31)	(-0.73)	(0.27)		(-0.11)	(0.57)	(0.36)
Laborer/Service	DEPEO	0.0250	-0.0132	0.0638	DEPEPS	0.0019**	0.0026***	-0.0003
	(Z)	(0.80)	(-0.31)	(0.11)		(2.55)	(2.63)	(-0.22)
	N	3370	1878	1531		3370	1878	1531
LR(Pr > X ²)		<1.07E-200	1.49E-136	1.39E-110		<1.07E-200	3.0E-138	1.2E-108
Pseudo R ²		0.1712	0.1365	0.1357		0.1711	0.1379	0.1338

Z score statistics in parentheses
 * p < 0.05, ** p < 0.01, *** p < 0.001

In Table 4.9 we report the marginal effects of DEPEOA and DEPREC on the probability of being employed in one of six broad occupational categories (OCCUP) among respondents with early-onset depression. As age of onset increases, women are less likely to work in clerical positions and are more likely to choose professional jobs than women whose onset occurred at a younger age. Men, on the other hand, are more likely to be managers and less likely to choose service positions compared to male respondents whose onset age were younger. As the time since the last episode increases, respondents have a lower probability of choosing service jobs compared

⁸See Tables C.10 and C.14 in Appendix C, for details.

to men whose last episodes are more recent.

Table 4.9: Marginal Effect of Early-Onset Depression on Occupation

NCS1 Limited		All dy/dx	Male dy/dx	Female dy/dx	All dy/dx		Male dy/dx	Female dy/dx
Professional	DEPEOA	0.0158*** (2.60)	0.0090 (1.09)	0.0214** (2.47)	DEPREC	0.0366* (1.79)	-0.0032 (-0.12)	0.0521* (1.83)
Managerial	DEPEOA	0.0114* (1.69)	0.0300*** (2.70)	0.0004 (0.04)	DEPREC	-0.0001 (-0.01)	-0.0088 (-0.26)	0.0016 (0.06)
Sales	DEPEOA	0.0021 (0.44)	-0.0040 (-0.50)	0.0065 (1.40)	DEPREC	0.0049 (0.32)	0.0023 (0.09)	0.0104 (0.66)
Clerical	DEPEOA	-0.0099 (-1.56)	0.0112 (1.46)	-0.0233** (-2.35)	DEPREC	-0.0055 (-0.26)	0.0325 (1.41)	-0.0267 (-0.82)
Technician	DEPEOA	-0.0062 (-1.20)	-0.0227* (-1.81)	-0.0012 (-0.22)	DEPREC	0.0071 (0.39)	0.0118 (0.28)	0.0063 (0.38)
Laborer/Service	DEPEOA	-0.0132** (-2.07)	-0.0235*** (-2.57)	-0.0038 (-0.43)	DEPREC	-0.0430** (-2.09)	-0.0346 (-1.08)	-0.0438* (-1.67)
N		298	117	181	298		117	181
LR(Pr > X ²)		2.8E-14	0.0001	6.4E-07	3.7E-13		0.0038	2.9E-06
Pseudo R ²		0.1509	0.2059	0.1613	0.1440		0.1720	0.1533

Z score statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

As shown in Table 4.10, when both early-onset depression and number of episodes are controlled for together, compared to respondents without early-onset depression, women have a lower probability of choosing clerical jobs due to depression while men will probably choose service jobs if they experience high numbers of episodes compared to men with fewer episodes. For the subsample, the effect of both age of onset and time since last episode among respondents with early-onset depression is reported in Table 4.10. The older the age of onset, the higher the probability of choosing professional or managerial positions and the lower the probability of choosing clerical or service jobs compared to respondent with younger age of onset.⁹

⁹The full set of results for both the limited and unlimited data sets for the effect of early-onset depression on OCCUP are shown in Tables C.8-C.19 in Appendix C.

Table 4.10: Marginal Effect of Time Since Last Episode on Occupation

NCS1		All	Male	Female	All		Male	Female
Limited		dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
Professional	DEPEO	0.0218	0.0333	0.0175	DEPEOA	0.0143**	0.0092	0.0189**
	(Z)	(1.02)	(1.02)	(0.65)		(2.36)	(1.10)	(2.15)
	DEPEPS	-0.0008	-0.0005	-0.0004	DEPREC	0.0291	-0.0029	0.0385
	(Z)	(-1.04)	(-0.52)	(-0.28)		(1.44)	(-0.10)	(1.35)
Managerial	DEPEO	0.0213	-0.0114	0.0515	DEPEOA	0.0118*	0.0310***	0.0003
	(Z)	(0.74)	(-0.28)	(1.44)		(1.72)	(2.74)	(0.03)
	DEPEPS	-0.0002	0.0005	-7.30e ⁻⁰⁷	DEPREC	-0.0064	-0.0196	0.0020
	(Z)	(-0.26)	(0.41)	(-0.00)		(-0.30)	(-0.63)	(0.07)
Sale	DEPEO	0.0062	0.0360	-0.0130	DEPEOA	0.0019	-0.0039	0.0062
	(Z)	(0.31)	(1.21)	(-0.51)		(0.39)	(-0.50)	(1.30)
	DEPEPS	-0.0008	-0.0039	0.0008	DEPREC	0.0038	0.0016	0.0059
	(Z)	(-0.88)	(-1.28)	(0.80)		(0.24)	(0.06)	(0.40)
Clerical	DEPEO	-0.0597*	0.0089	-0.1268***	DEPEOA	-0.0101	0.0092	-0.0229**
	(Z)	(-2.71)	(0.28)	(-3.06)		(-1.55)	(1.23)	(-2.24)
	DEPEPS	-0.00004	0.0001	-0.0002	DEPREC	0.0003	0.0246	-0.0107
	(Z)	(-0.05)	(0.07)	(-0.08)		(0.01)	(1.06)	(-0.32)
Technician	DEPEO	-0.0076	-0.0369	0.0059	DEPEOA	-0.0069	-0.0231*	-0.0019
	(Z)	(-0.25)	(-0.68)	(0.24)		(-1.32)	(-1.82)	(-0.34)
	DEPEPS	-0.0001	0.0011	0.0002	DEPREC	0.0107	0.0181	0.0083
	(Z)	(-0.09)	(0.65)	(0.33)		(0.58)	(0.40)	(0.47)
Service	DEPEO	0.0181	-0.0299	0.0650	DEPEOA	-0.0110*	-0.0223**	-0.0007
	(Z)	(0.58)	(-0.73)	(1.61)		(-1.69)	(-2.37)	(-0.07)
	DEPEPS	0.0019**	0.0027***	-0.0005	DEPREC	-0.0374*	-0.0218	-0.0440
	(Z)	(2.48)	(2.70)	(-0.35)		(-1.76)	(-0.64)	(-1.61)
N		3370	1839	1531	298		117	181
LR(Pr > X ²)		<1.1E-200	5.1E-136	5.0E-108	1.2E-13		0.0004	1.9E-06
Pseudo R ²		0.1717	0.1385	0.1358	0.1554		0.2109	0.1677

Z score statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 4.11 reports the marginal effects of DEPEO and DEPEPS on the probability of being employed in occupational groups as defined by educational and on-the-job training requirements (JOBZONE) for the full sample of the limited data set. While we find no significant effects for women, compared to men not suffering from early-onset depression, the disability appears to reduce the probability of a man working in a position with relatively low educational requirements and increases the probability of a man working in a position with higher educational and training requirements. However, the estimates of Table 4.11 indicate that these effects are offset by the number of episodes of depression. Compared to men with lower episode of depression, the higher the number of episodes, the higher the probability that men will choose jobs with low training and education requirements.

Table 4.11: Marginal Effect of Early-Onset Depression on Occupational Job Zone

NCS1 Limited		All dy/dx	Male dy/dx	Female dy/dx				All dy/dx	Male dy/dx	Female dy/dx
Zone 1	DEPEO	-0.0101**	-0.0152**	-0.0072	DEPEPS	0.0002	0.0003*	-0.0003		
	(Z)	(-2.18)	(-2.25)	(-1.20)		(1.19)	(1.64)	(-1.00)		
Zone 2	DEPEO	-0.0465**	-0.0700**	-0.0358	DEPEPS	0.0008	0.0013*	-0.0015		
	(Z)	(-2.02)	(-2.02)	(-1.14)		(1.19)	(1.65)	(-1.00)		
Zone 3	DEPEO	0.0091***	0.0066***	0.0105	DEPEPS	-0.0002	-0.0003	0.0005		
	(Z)	(2.91)	(2.68)	(1.33)		(-1.18)	(-1.59)	(0.99)		
Zone 4	DEPEO	0.0416*	0.0686*	0.0284	DEPEPS	-0.0007	-0.0012*	0.0011		
	(Z)	(1.94)	(1.89)	(1.10)		(-1.19)	(-1.65)	(1.00)		
Zone 5	DEPEO	0.0059*	0.0100*	0.0041	DEPEPS	-0.0001	-0.0002	0.0002		
	(Z)	(1.81)	(1.67)	(1.05)		(-1.19)	(-1.62)	(0.99)		
N		3370	1839	1531	3370		1839	1531		
LR(Pr > X ²)		2.98E-201	7.72E-116	2.53E-85	1.1E-200		1.3E-115	2.9E-85		
Pseudo R ²		0.1044	0.1114	0.1028	0.1042		0.1112	0.1027		

Z score statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.12 reports the marginal effects of DEPEOA and DEPREC on the probability of being employed in occupational groups as defined by educational and on-the-job training requirements (JOBZONE) for the sample of respondents with early-onset depression (subsample of limited data set). For the subsample of respondents, the older the age of onset, the higher the probability of choosing jobs requiring more education and training and the lower the likelihood of choosing jobs requiring less education compared to respondent with younger age of onset.

Table 4.13 reports that in the full sample, the effect of early-onset depression and number of episodes offset each other for men, while both have no effect for women. The probability of choosing jobs requiring less training is high for people with higher numbers of episodes compared to men with less episodes while the probability of choosing jobs requiring less training is low for respondents with early-onset depression compared to respondent without early-onset depression.¹⁰

¹⁰The full set of results for both the limited and unlimited data sets for the effect of early-onset depression on JOBZONE are shown in Tables C.20-C.31 in Appendix C.

Table 4.12: Marginal Effect of Early-Onset Depression on Occupational Job Zone

NCS1 Limited		All dy/dx	Male dy/dx	Female dy/dx	All dy/dx		Male dy/dx	Female dy/dx
Zone 1	DEPEOA	-0.0016*	-0.0012	-0.0015	DEPREC	-0.0022	-0.0025	0.0001
	(Z)	(-1.75)	(-1.24)	(-1.06)		(-0.75)	(-0.80)	(0.02)
Zone 2	DEPEOA	-0.0102*	-0.0121	-0.0081	DEPREC	-0.0140	-0.0253	0.0005
	(Z)	(-1.92)	(-1.53)	(-1.11)		(-0.76)	(-0.87)	(0.02)
Zone 3	DEPEOA	0.0005	-0.0016	0.0014	DEPREC	0.0008	-0.0031	-0.0001
	(Z)	(0.57)	(-0.80)	(0.89)		(0.49)	(-0.61)	(-0.02)
Zone 4	DEPEOA	0.0097*	0.0129	0.0072	DEPREC	0.0134	0.0267	-0.0004
	(Z)	(1.91)	(1.51)	(1.11)		(0.76)	(0.87)	(-0.02)
Zone 5	DEPEOA	0.0014*	0.0020	0.0010	DEPREC	0.0021	0.0043	-0.0001
	(Z)	(1.73)	(1.32)	(1.04)		(0.75)	(0.83)	(-0.02)
N		298	117	181	298		117	181
LR(Pr > X ²)		6.0E-11	0.0004	2.1E-06	2.42E-10		0.0007	1.1E-05
Pseudo R ²		0.0908	0.1071	0.0895	0.0869		0.1021	0.0870

Z score statistics in parentheses
 * p < 0.05, ** p < 0.01, *** p < 0.001

Table 4.13: Marginal Effect of Time Since Last Episode on Occupational Job Zone

NCS1 Limited		All dy/dx	Male dy/dx	Female dy/dx	All dy/dx		Male dy/dx	Female dy/dx
Zone 1	DEPEO	-0.0105**	-0.0165**	-0.0069	DEPEOA	-0.0015*	-0.0011	-0.0016
	(Z)	(-2.29)	(-2.52)	(-1.15)		(-1.67)	(-1.18)	(-1.08)
	DEPEPS	0.0002	0.0004*	-0.0003	DEPREC	-0.0012	0.0019	0.0011
	(Z)	(1.34)	(1.88)	(-0.95)		(-0.43)	(-0.62)	(0.22)
Zone 2	DEPEO	-0.0489**	-0.0777**	-0.0346	DEPEOA	-0.0098*	-0.0113	-0.0084
	(Z)	(-2.12)	(-2.24)	(-1.09)		(-1.82)	(-1.42)	(-1.13)
	DEPEPS	0.0010	0.0015*	-0.0014	DEPREC	-0.0081	-0.0189	0.0057
	(Z)	(1.34)	(1.88)	(-0.95)		(-0.43)	(-0.65)	(0.22)
Zone 3	DEPEO	0.0094***	0.0063**	0.0102	DEPEOA	0.0005	-0.0016	0.0015
	(Z)	(3.12)	(2.05)	(1.28)		(0.57)	(-0.79)	(0.90)
	DEPEPS	-0.0003	-0.0003*	0.0005	DEPREC	0.0004	-0.0026	-0.0010
	(Z)	(-1.33)	(-1.80)	(0.95)		(0.35)	(-0.54)	(-0.22)
Zone 4	DEPEO	0.0437**	0.0766**	0.0274	DEPEOA	0.0093*	0.0121	0.0074
	(Z)	(2.03)	(2.09)	(1.06)		(1.81)	(1.40)	(1.13)
	DEPEPS	-0.0008	-0.0014*	0.0011	DEPREC	0.0077	0.0202	-0.0050
	(Z)	(-1.35)	(-1.89)	(0.95)		(0.43)	(0.65)	(-0.22)
Zone 5	DEPEO	0.0063*	0.0113*	0.0004	DEPEOA	0.0014*	0.0019	0.0011
	(Z)	(1.88)	(1.81)	(1.01)		(1.65)	(1.24)	(1.06)
	DEPEPS	-0.0001	-0.0002*	0.0001	DEPREC	0.0012	0.0032	-0.0007
	(Z)	(-1.34)	(-1.85)	(0.95)		(0.43)	(0.63)	(-0.22)
N		3370	1839	1531	298		117	181
LR(Pr > X ²)		1.1E-200	9.6E-116	1.0E-84	1.5E-10		0.0006	1.4E-05
Pseudo R ²		0.1046	0.1121	0.1030	0.0910		0.1085	0.0896

Z score statistics in parentheses
 * p < 0.05, ** p < 0.01, *** p < 0.001

4.7 Conclusion

Our findings reveal that early-onset major depressive disorder significantly affects several aspects of adult employment and occupation. We find that men with early-onset depression are more likely to be self-employed than their male peers, while women with early-onset depression are more likely to be employed full-time than women without early-onset depression. Women who report early-onset major depressive disorder are less likely than other women to work in clerical positions and are more likely to work as laborers in the service sector than women without the disorder. For men, the likelihood of working in the service sector increases as the number of lifetime episodes increases. Although, compared to men without the disorder, early-onset major depressive disorder appears to reduce the probability of a man working in a position with relatively little educational requirements and increases the probability of a man working in a position with greater educational and training requirements, our estimates indicate that these effects are partially offset by the number of episodes of depression. The analysis of early-onset depression on labor force participation (LFP) and employment (EMPW) is problematic due to the small number of observations and lack of variation of the dependent variables in some of the covariates, making these unreliable. Estimation using a larger data set may resolve this problem.

The current analysis used data collected in the 1990s. In our future research, we plan to use more recent data for our analyses. We also plan to examine data before and after the Americans with Disabilities Act of 1990 was implemented to assess its impact on occupational choices of individuals with early-onset depression.

We are aware that there may be a problem of overestimation due to selection bias in these analyses because individuals with early-onset depression may be less likely than other respondents to participate in the labor force. This means that our estimates for employed respondents may not represent the effects for all respondents (including those not employed).

Because millions of people around the world suffer from depressive disorders and much effort is expended in fighting its impact on individuals' lives, it is vital that we fully understand the many ways in which these disorders impact workers lives. This research provides an initial probe into the ways in which early-onset major depressive disorder affects later labor market outcomes.

CHAPTER 5

CONCLUSION

This dissertation consists of three essays examining topics in health economics. The first looks at the effect of education on health (measured by mortality rate). The second analyzes the direct and indirect effects of education on health behaviors and health outcomes. The last evaluates occupational decisions of individuals who have suffered early-onset depression.

More human capital is beneficial to the development of any nation, but how to use policy to maximize investment in education is not clear. Economic research indicates that the best measures for human capital are formal education, informal educational training, and learning by doing (experience). Theories connect an individual's demand for health to his or her level of income, which depends on the level of education. I believe a clear understanding of the path by which education, health behaviors, and health outcomes are related is beneficial for policy design.

My first essay shows that the education health gradient varies by race and ethnicity. The policy implication is that the government should target more spending to reduce disparities by race and ethnicity. More scholarships and financial aid could be available to minority or disadvantaged youth with good grades. Although schools are no longer segregated in the United States, they are still funded by property taxes in the area where they are located. Schools in poor districts have less funding for their schools than schools in rich districts. Funding affects the number of schools in those districts, the number of teachers employed, and how far or near students have to travel to get to school, so better knowledge of how to boost learning in disadvantaged districts would help.

The results of my second essay show that investment in healthy living (dieting, exercising, reg-

ular medical check ups) is beneficial to overall health. Also, these investments help individuals manage health outcomes better. Dieting helps diabetic patients, exercising helps prevent cardiovascular problems, and occasional alcoholic drinks are good for the heart while excessive drinking and smoking is damaging to the heart and lungs. Knowledge about the benefits of these health behaviors is not evenly distributed in the population. There is disparity by race and ethnicity, as well as by gender, age, and income level, so informational programs or informal ways of educating the affected groups could help reduce education-health gradient disparities over time.

The fact that depression is now one of the leading causes of disability and is projected to be the leading cause in the future (2030) emphasizes the importance of my third essay. Knowing how the disorder affects the lives of individuals will allow us to help them cope with this disability. We particularly wanted to understand whether the disability affects choice of occupation. We also wanted to understand if the choices depend particularly on an occupation's characteristics. Such knowledge may help improve the implementation and evaluation of the Americans with Disability Act and/or shed light on other ways to help individuals with early-onset depression cope with the struggles that come with this disability.

The goal of the government is to maximize social welfare both in term of general health and the health of individuals with disabilities. This is the basis for both Obamacare and the Americans with Disabilities Act of 1990. My research contributes to literature in that it highlights that investment in education affects the long run health of the population and that education policy should be tailored by race and ethnicity to address disparities in the education health gradient. Because my findings indicate that individuals with early-onset depression prefer self-employment and only women with the disability prefer full-time employment, it follows that many individuals with early-onset depression are not employed in jobs with sufficient accommodations to allow full participation in the labor market. My research points to the need for further research to examine whether the ADA has increased accommodations for these individuals in the labor market.

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APPENDIX A

APPENDIX FOR CHAPTER 2

Table A.1: Sources of State Characteristic Data

Data	Source
Education expenditure	Biennial Survey of Education-Exist for even years Statistical Abstract of the U.S. 1914-1960
No of school per states	Statistical Abstract of the U.S. 1914-1960
Percentage employed in manufacturing	Statistical Abstract of the U.S. 1914-1960
State Income and No of tax returns	Census of manufacturing-Exit for old years
Percentage living in urban area	Statistical Abstract of the U.S. 1914-1960
Percentage of blacks population	Statistical Abstract of the U.S. & Census
Percentage of foreign born population	Statistical Abstract of the U.S. & Census
Value of farm properties & per acre	Statistical Abstract of the U.S. 1914-1960
State population	Statistical Abstract of the U.S. 1914-1960
Number of hospital & doctors per states	Statistical Abstract of the U.S. 1914-1960

Table A.2: Sources of State Compulsory Schooling & Child Labor Law Data

year	Compulsory law	Child labor law
1914	Compulsory school attendance Bulletin no 2	Child labor legislation in the United States-no 1
1915	Child labor legislation in the United States	Child labor legislation in the United States
1917	Biennial Survey of education 1916-1918 Bulletin no 90, 191	Biennial Survey of education 1916-1918
1921	State compulsory attendance standards 1921 chart1	State compulsory attendance standards 1921 chart1
1924	State compulsory attendance standards 1924 chart1	State compulsory attendance standards 1924 chart1
1929	Child labor: fact and figures Bulletin no 197	Child labor: fact and figures Bulletin no 197
1935	Compulsory school attendance Bulletin no 4	Compulsory school attendance Bulletin no 4
1939	Compulsory school attendance cir. no 440	Compulsory school attendance cir. no 440
1946	state child labor standard 1946 series no 2	state child labor standard 1947 series no 2
1950	state child labor standard 1949 Bulletin no 98	State child-labor standard-Bulletin 98
1954	Compulsory school attendance cir. no 440 by Keesecker 1955	Compulsory school attendance cir. no 440
1959	State Legislation on School attendance by Umbeck cir. No 615	State Legislation on School attendance by Umbeck
1960	State Law on School attendance by Steinhilber cir. No 793	State child labor standard-Bulletin 158

APPENDIX B

APPENDIX FOR CHAPTER 3

Table B.1: Effect of Education on Health Behaviors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.152*** (-42.11)	-0.125*** (-34.22)	-0.116*** (-30.96)	0.0772*** (25.09)	0.0675*** (20.90)	0.0542*** (16.23)	0.0505*** (20.06)	0.0392*** (14.97)	0.0322*** (12.09)
black	-0.768*** (-9.19)	-0.838*** (-10.13)	-0.921*** (-10.95)	0.542*** (7.08)	0.552*** (7.16)	0.502*** (6.44)	-0.252*** (-3.90)	-0.206** (-3.21)	-0.143* (-2.19)
asian	-1.350*** (-12.31)	-1.277*** (-11.46)	-1.379*** (-11.23)	0.630*** (6.05)	0.597*** (5.69)	0.847*** (6.15)	0.239** (2.70)	0.209* (2.36)	0.194* (2.05)
hispanic	-2.278*** (-35.89)	-2.206*** (-34.62)	-2.078*** (-31.85)	1.657*** (26.24)	1.621*** (25.39)	1.310*** (19.92)	0.0482 (1.07)	0.0204 (0.45)	-0.0818 (-1.77)
Bschl	0.0569*** (8.80)	0.0556*** (8.64)	0.0567*** (8.70)	-0.0379*** (-6.38)	-0.0365*** (-6.09)	-0.0359*** (-5.93)	0.00705 (1.42)	0.00620 (1.26)	0.00298 (0.60)
Aschl	0.0688*** (8.80)	0.0626*** (7.85)	0.0670*** (7.99)	-0.00818 (-1.09)	-0.00554 (-0.73)	-0.0162 (-1.71)	-0.0260*** (-4.13)	-0.0237*** (-3.77)	-0.0242*** (-3.72)
Hschl	0.138*** (27.04)	0.127*** (24.37)	0.119*** (22.67)	-0.0831*** (-15.88)	-0.0784*** (-14.74)	-0.0668*** (-12.30)	-0.0162*** (-4.46)	-0.0117** (-3.22)	-0.00570 (-1.55)
female	-0.209*** (-16.40)	-0.246*** (-19.09)	-0.258*** (-19.43)	0.329*** (25.77)	0.341*** (26.64)	0.342*** (25.87)	-0.178*** (-18.55)	-0.165*** (-17.16)	-0.144*** (-14.70)
_Iповcat_4		-0.253*** (-18.13)	-0.134*** (-9.16)		0.0524*** (3.62)	-0.00998 (-0.65)		0.142*** (12.68)	0.0913*** (7.75)
_Iповcat_5		-0.479*** (-29.10)	-0.300*** (-17.07)		0.162*** (9.85)	0.0608*** (3.39)		0.200*** (16.17)	0.142*** (10.65)
midwest			0.0975*** (4.51)			-0.0769*** (-3.72)			0.0384* (2.37)
south			0.0329 (1.66)			0.182*** (9.40)			-0.0195 (-1.33)
west			-0.0935*** (-4.18)			0.337*** (14.79)			0.104*** (6.50)
urban			-0.0176 (-1.03)			0.298*** (18.63)			-0.0218 (-1.70)
married			-0.296*** (-21.44)			0.131*** (9.37)			-0.0498*** (-4.76)
coglimt			0.150*** (5.55)			-0.0161 (-0.58)			-0.518*** (-23.33)
risk_attitude			0.138*** (10.97)			-0.188*** (-14.31)			0.133*** (12.79)
private			-0.212*** (-11.78)			0.0723*** (3.77)			0.0157 (1.08)
public			-0.0365 (-1.66)			-0.0130 (-0.57)			-0.166*** (-9.52)
_cons	1.622*** (24.23)	1.494*** (22.40)	1.875*** (20.40)	-0.605*** (-9.55)	-0.543*** (-8.50)	-1.482*** (-15.76)	-0.274*** (-5.06)	-0.232*** (-4.25)	-0.0876 (-1.18)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Idatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	3585.8***	4398.2***	5217.0***	2636.3***	2733.5***	4267.0***	2299.1***	2591.9***	3754.3***
Chow test	732.74***	594.55***	517.08***	265.02***	230.89***	158.80***	42.24***	28.33***	16.95***
N	100404	100404	100404	100404	100404	100404	100404	100404	100404

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.2: Marginal Effect of Education on Health Behaviors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrschl	-0.0386 ^{***} (-43.96)	-0.0314 ^{***} (-35.20)	-0.0285 ^{***} (-31.66)	0.0162 ^{***} (25.22)	0.0141 ^{***} (20.98)	0.0110 ^{***} (16.27)	0.0195 ^{***} (20.25)	0.0151 ^{***} (15.05)	0.0123 ^{***} (12.13)
Bschl	0.0145 ^{***} (8.82)	0.0139 ^{***} (8.66)	0.0139 ^{***} (8.72)	-0.00795 ^{***} (-6.38)	-0.00764 ^{***} (-6.09)	-0.00725 ^{***} (-5.93)	0.00272 (1.42)	0.00239 (1.26)	0.00113 (0.60)
Aschl	0.0175 ^{***} (8.83)	0.0157 ^{***} (7.87)	0.0164 ^{***} (8.02)	-0.00172 (-1.09)	-0.00116 (-0.73)	-0.00327 (-1.71)	-0.0101 ^{***} (-4.14)	-0.00911 ^{***} (-3.77)	-0.00921 ^{***} (-3.72)
Hschl	0.0352 ^{***} (27.55)	0.0317 ^{***} (24.74)	0.0292 ^{***} (22.96)	-0.0174 ^{***} (-15.90)	-0.0164 ^{***} (-14.75)	-0.0135 ^{***} (-12.31)	-0.00627 ^{***} (-4.46)	-0.00452 ^{**} (-3.22)	-0.00217 (-1.55)
chi2	3585.8 ^{***}	4398.2 ^{***}	5217.0 ^{***}	2636.3 ^{***}	2733.5 ^{***}	4267.0 ^{***}	2299.1 ^{***}	2591.9 ^{***}	3754.3 ^{***}
Chow test	732.74 ^{***}	594.55 ^{***}	517.08 ^{***}	265.02 ^{***}	230.89 ^{***}	158.80 ^{***}	42.24 ^{***}	28.33 ^{***}	16.95 ^{***}
N	100404	100404	100404	100404	100404	100404	100404	100404	100404

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.3: Effect of Education on Health Outcomes

	(1) Baseline bmi	(2) + Income bmi	(3) + controls bmi	(4) Baseline hypertensive	(5) + Income hypertensive	(6) + controls hypertensive	(7) Baseline heart_attack	(8) + Income heart_attack	(9) + controls heart_attack	(10) Baseline diabetes	(11) + Income diabetes	(12) + controls diabetes
yrsschl	-0.0591*** (-19.77)	-0.0514*** (-16.66)	-0.0518*** (-16.51)	-0.0430*** (-13.53)	-0.0330*** (-10.65)	-0.0330*** (-9.85)	-0.0416*** (-8.58)	-0.0276*** (-5.42)	-0.0376*** (-4.52)	-0.0540*** (-13.56)	-0.0436*** (-10.55)	-0.0390*** (-9.24)
black	-0.405*** (-5.54)	-0.415*** (-5.67)	-0.428*** (-5.80)	0.189* (2.30)	0.167* (2.05)	0.134 (1.63)	-0.513*** (-4.26)	-0.547*** (-4.45)	-0.592*** (-4.81)	-0.0615 (-0.68)	-0.0934 (-1.02)	-0.136 (-1.47)
asian	-0.798*** (-8.05)	-0.778*** (-7.84)	-1.365*** (-11.51)	-0.353*** (-3.34)	-0.329** (-3.13)	-0.473*** (-4.19)	-0.596*** (-3.23)	-0.549** (-2.92)	-0.707*** (-3.32)	-0.246* (-2.00)	-0.212 (-1.71)	-0.272* (-2.04)
hispanic	-0.596*** (-11.50)	-0.568*** (-10.95)	-0.511*** (-9.67)	-0.606*** (-10.74)	-0.583*** (-10.31)	-0.493*** (-8.48)	-0.758*** (-7.94)	-0.729*** (-7.51)	-0.688*** (-6.95)	-0.206** (-3.06)	-0.183* (-2.70)	-0.0914 (-1.31)
Bschl	0.0555*** (9.90)	0.0546*** (9.71)	0.0548*** (9.70)	0.0199** (3.17)	0.0196* (3.13)	0.0198* (3.14)	0.0368*** (3.81)	0.0325*** (3.56)	0.0372*** (3.76)	0.0325*** (4.57)	0.0322*** (4.47)	0.0346*** (4.81)
Aschl	0.0154* (2.16)	0.0137 (1.92)	0.0388*** (4.76)	0.0250*** (3.29)	0.0230* (3.03)	0.0292*** (3.72)	0.0285* (2.04)	0.0238 (1.67)	0.0309* (2.02)	0.0274** (3.04)	0.0245** (2.69)	0.0274** (2.91)
Hschl	0.0512*** (12.36)	0.0474*** (11.37)	0.0450*** (10.75)	0.0416*** (9.08)	0.0379*** (8.21)	0.0327*** (6.99)	0.0456*** (5.37)	0.0395*** (4.54)	0.0375*** (4.26)	0.0348*** (6.27)	0.0303*** (5.39)	0.0255*** (4.47)
smoke	-0.216*** (-15.21)	-0.230*** (-16.09)	-0.238*** (-16.44)	-0.0336*** (-2.18)	-0.0495** (-3.20)	-0.0580*** (-3.70)	0.220*** (8.41)	0.191*** (7.19)	0.177*** (6.56)	-0.0989*** (-4.80)	-0.121*** (-5.83)	-0.128*** (-6.06)
seatbelt	-0.245*** (-16.73)	-0.241*** (-16.45)	-0.238*** (-16.11)	-0.0671*** (-4.12)	-0.0624*** (-3.83)	-0.0755*** (-4.57)	-0.0952*** (-3.43)	-0.0889** (-3.18)	-0.0828** (-2.91)	-0.103*** (-5.01)	-0.0958*** (-4.67)	-0.105*** (-5.02)
exercise	-0.348*** (-35.72)	-0.344*** (-35.23)	-0.342*** (-34.72)	-0.209*** (-19.99)	-0.203*** (-19.42)	-0.183*** (-17.36)	-0.211*** (-10.92)	-0.198*** (-10.19)	-0.170*** (-10.92)	-0.258*** (-19.01)	-0.249*** (-18.28)	-0.218*** (-15.86)
female	0.0693*** (6.11)	0.0604*** (5.31)	0.0438*** (3.78)	-0.0711*** (-5.80)	-0.0810*** (-6.58)	-0.105*** (-8.31)	-0.324*** (-14.35)	-0.348*** (-15.33)	-0.359*** (-15.29)	-0.0454*** (-2.84)	-0.0607*** (-3.78)	-0.0753*** (-4.57)
_lpoecat_4												
_lpoecat_5												
midwest												
south												
west												
urban												
married												
coglimt												
risk_attitude												
private												
public												
_cons	0.365*** (5.71)	0.312*** (4.86)	1.195*** (13.75)	-0.816*** (-10.19)	-0.865*** (-10.79)	-0.691*** (-6.99)	-2.010*** (-8.35)	-2.040*** (-8.36)	-2.027*** (-7.46)	-1.555*** (-11.23)	-1.598*** (-11.48)	-1.706*** (-10.79)
_lpage*												
_ldayr*												
chi2	4202.1*** 100404	4273.2*** 100404	4444.3*** 100404	11124.4*** 100404	11210.3*** 100404	11784.8*** 100404	2209.4*** 98510	2288.7*** 98510	2535.3*** 98510	3506.3*** 100404	3609.8*** 100404	4130.2*** 100404
Chow test	192.97*** 100404	171.50*** 100404	156.09*** 100404	82.98*** 100404	67.99*** 100404	52.66*** 100404	35.30*** 98510	26.70*** 98510	26.40*** 98510	45.59*** 100404	36.44*** 100404	32.55*** 100404
N	100404	100404	100404	100404	100404	100404	98510	98510	98510	100404	100404	100404

Table B.4: Marginal Effect of Education on Health Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrschl	-0.0198*** (-19.96)	-0.0172*** (-16.77)	-0.0172*** (-16.62)	-0.0127*** (-13.60)	-0.0103*** (-10.68)	-0.00961*** (-9.88)	-0.00299*** (-8.52)	-0.00197*** (-5.41)	-0.00167*** (-4.52)	-0.00862*** (-13.54)	-0.00694*** (-10.55)	-0.00612*** (-9.23)
Bschl	0.0186*** (9.92)	0.0183*** (9.73)	0.0182*** (9.72)	0.00590** (3.17)	0.00580** (3.13)	0.00578** (3.14)	0.00264*** (3.81)	0.00252*** (3.55)	0.00263*** (3.76)	0.00520*** (4.56)	0.00514*** (4.47)	0.00544*** (4.80)
Aschl	0.00517* (2.16)	0.00459 (1.92)	0.0129*** (4.76)	0.00739*** (3.30)	0.00678** (3.03)	0.00851*** (3.73)	0.00204* (2.04)	0.00170 (1.66)	0.00218* (2.02)	0.00438** (3.04)	0.00390** (2.69)	0.00431** (2.91)
Hschl	0.0172*** (12.40)	0.0159*** (11.40)	0.0150*** (10.78)	0.0123*** (9.09)	0.0112*** (8.22)	0.00954*** (7.00)	0.00328*** (5.36)	0.00282*** (4.53)	0.00265*** (4.25)	0.00557*** (6.27)	0.00483*** (5.39)	0.00400*** (4.47)
smoke	-0.0723*** (-15.29)	-0.0769*** (-16.18)	-0.0789*** (-16.54)	-0.00994* (-2.18)	-0.0146** (-3.20)	-0.0169*** (-3.70)	0.0158*** (8.34)	0.0136*** (7.15)	0.0125*** (6.53)	-0.0158*** (-4.81)	-0.0193*** (-5.84)	-0.0202*** (-6.06)
seatbelt	-0.0821*** (-16.82)	-0.0806*** (-16.54)	-0.0792*** (-16.20)	-0.0199*** (-4.12)	-0.0184*** (-3.83)	-0.0220*** (-4.57)	-0.00684*** (-3.43)	-0.00634** (-3.18)	-0.00585** (-2.90)	-0.0164*** (-5.01)	-0.0153*** (-4.67)	-0.0165*** (-5.02)
exercise	-0.117*** (-36.47)	-0.115*** (-35.95)	-0.114*** (-35.41)	-0.0618*** (-20.15)	-0.0600*** (-19.57)	-0.0534*** (-17.47)	-0.0152*** (-10.83)	-0.0141*** (-10.12)	-0.0120*** (-8.58)	-0.0412*** (-18.97)	-0.0396*** (-18.25)	-0.0342*** (-15.84)
chi2	4202.1***	4273.2***	4444.3***	11124.4***	11210.3***	11784.8***	2209.4***	2288.7***	2535.3***	3506.3***	3609.8***	4130.2***
Chow test	192.97***	171.50***	156.09***	82.98***	67.99***	52.66***	35.30***	26.70***	26.40***	45.59***	36.44***	32.55***
N	100404	100404	100404	100404	100404	100404	98510	98510	98510	100404	100404	100404

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.5: Effect of Education on Health Behaviors - MAMMO

	Baseline MAMMO	+ Income MAMMO	+ controls MAMMO
yrsschl	0.0884*** (17.47)	0.0577*** (11.03)	0.0482*** (9.06)
black	0.482*** (4.04)	0.534*** (4.38)	0.604*** (4.85)
asian	0.284 (1.80)	0.149 (0.93)	-0.0467 (-0.28)
hispanic	0.563*** (6.62)	0.427*** (5.00)	0.485*** (5.55)
Bschl	-0.0282** (-3.01)	-0.0234* (-2.42)	-0.0257** (-2.60)
Aschl	-0.0220 (-1.86)	-0.0115 (-0.95)	-0.00426 (-0.35)
Hschl	-0.0406*** (-5.70)	-0.0228** (-3.15)	-0.0222** (-3.04)
_Ipoocat_4		0.237*** (11.03)	0.101*** (4.43)
_Ipoocat_5		0.549*** (21.96)	0.324*** (11.92)
midwest			-0.167*** (-4.86)
south			-0.172*** (-5.59)
west			-0.156*** (-4.58)
urban			0.134*** (5.39)
married			0.141*** (6.44)
coglimt			-0.0729* (-2.11)
risk_attitude			-0.164*** (-7.42)
private			0.667*** (22.28)
public			0.510*** (15.16)
_cons	-1.065*** (-12.45)	-0.946*** (-11.00)	-0.823*** (-6.06)
_Iage*	Yes	Yes	Yes
_Idatayr*	No	No	Yes
chi2	1286.8***	1742.0***	2377.5***
Chow test	33.46***	11.89**	12.58**
N	36900	36900	36900

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.6: Marginal Effect of Education on Health Behaviors Behaviors - MAMMO

	(1)	(2)	(3)
	Baseline MAMMO	+ Income MAMMO	+ controls MAMMO
yrsschl	0.0240 ^{***} (17.71)	0.0154 ^{***} (11.11)	0.0124 ^{***} (9.10)
black	0.131 ^{***} (4.04)	0.142 ^{***} (4.39)	0.156 ^{***} (4.85)
asian	0.0771 (1.80)	0.0397 (0.93)	-0.0120 (-0.28)
hispanic	0.153 ^{***} (6.64)	0.114 ^{***} (5.01)	0.125 ^{***} (5.56)
Bschl	-0.00767 ^{**} (-3.01)	-0.00623 [*] (-2.42)	-0.00662 ^{**} (-2.60)
Aschl	-0.00597 (-1.86)	-0.00307 (-0.95)	-0.00110 (-0.35)
Hschl	-0.0110 ^{***} (-5.71)	-0.00607 ^{**} (-3.15)	-0.00573 ^{**} (-3.04)
chi2	1286.8 ^{***}	1742.0 ^{***}	2377.5 ^{***}
Chow test	33.46 ^{***}	11.89 ^{**}	12.58 ^{**}
N	36900	36900	36900

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.7: Effect of Education on Health Behaviors by Gender: Male

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline exercise	+ Income exercise	+ controls exercise	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt
yrsschl	-0.151*** (-29.69)	-0.129*** (-24.92)	-0.119*** (-22.43)	0.0458*** (12.62)	0.0348*** (9.22)	0.0286*** (7.40)	0.0813*** (19.38)	0.0765*** (17.40)	0.0632*** (13.94)
black	-0.791*** (-6.34)	-0.842*** (-6.83)	-0.907*** (-7.25)	-0.268** (-2.68)	-0.238* (-2.40)	-0.166 (-1.64)	0.735*** (6.56)	0.732*** (6.51)	0.626*** (5.54)
asian	-0.811*** (-4.52)	-0.783*** (-4.32)	-0.750*** (-3.79)	0.0167 (0.12)	0.00460 (0.03)	-0.0761 (-0.48)	0.521** (3.12)	0.509** (3.06)	1.055*** (4.95)
hispanic	-2.050*** (-23.34)	-2.003*** (-22.83)	-1.868*** (-20.71)	0.0989 (1.50)	0.0837 (1.27)	0.0117 (0.17)	1.906*** (21.00)	1.884*** (20.65)	1.563*** (16.50)
Bschl	0.0675*** (6.97)	0.0667*** (6.95)	0.0679*** (6.98)	0.0154* (2.00)	0.0154* (2.01)	0.0114 (1.46)	-0.0474*** (-5.42)	-0.0463*** (-5.27)	-0.0438*** (-4.98)
Aschl	0.0443*** (3.50)	0.0412** (3.22)	0.0418** (3.13)	-0.0116 (-1.16)	-0.0102 (-1.02)	-0.00628 (-0.59)	0.0102 (0.85)	0.0112 (0.93)	-0.0195 (-1.37)
Hschl	0.131*** (18.44)	0.122*** (17.03)	0.114*** (15.68)	-0.0169** (-3.13)	-0.0132* (-2.43)	-0.00851 (-1.55)	-0.0969*** (-12.84)	-0.0943*** (-12.40)	-0.0825*** (-10.55)
_Ipoecat_4		-0.220*** (-10.90)	-0.127*** (-6.07)		0.154*** (8.97)	0.104*** (5.82)		-0.00796 (-0.38)	-0.0361 (-1.64)
_Ipoecat_5		-0.423*** (-18.26)	-0.286*** (-11.61)		0.215*** (11.56)	0.157*** (7.83)		0.0740** (3.19)	0.0204 (0.82)
midwest			0.122*** (3.89)			0.0192 (0.78)			-0.128*** (-4.32)
south			0.0718* (2.48)			-0.0132 (-0.59)			0.157*** (5.62)
west			-0.0692* (-2.16)			0.0930*** (3.82)			0.283*** (8.85)
urban			0.0209 (0.84)			-0.0593** (-3.05)			0.310*** (13.67)
married			-0.287*** (-14.35)			-0.0984*** (-6.05)			0.114*** (5.69)
coglimt			0.0700 (1.65)			-0.537*** (-15.14)			0.0343 (0.80)
risk_attitude			0.137*** (8.09)			0.141*** (9.81)			-0.204*** (-11.77)
private			-0.238*** (-9.54)			0.0509* (2.41)			0.0651* (2.48)
public			-0.0603 (-1.78)			-0.152*** (-5.48)			0.0665 (1.93)
_cons	1.584*** (16.50)	1.494*** (15.60)	1.505*** (11.20)	-0.165* (-2.03)	-0.139 (-1.70)	0.123 (1.08)	-0.707*** (-7.91)	-0.663*** (-7.36)	-1.704*** (-12.45)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Idatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1533.2***	1896.2***	2327.4***	678.0***	823.3***	1363.9***	1403.8***	1419.0***	2175.5***
chow test	343.11***	293.69***	250.62***	20.43***	15.23***	6.84	184.14***	172.70***	117.61***
N	44655	44655	44655	44655	44655	44655	44655	44655	44655

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.8: Marginal Effect of Education on Health Behaviors by Gender: Male

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0422*** (-31.26)	-0.0355*** (-25.83)	-0.0322*** (-23.06)	0.0200*** (19.64)	0.0188*** (17.57)	0.0150*** (14.03)	0.0176*** (12.72)	0.0133*** (9.26)	0.0108*** (7.42)
Bschl	0.0188*** (6.99)	0.0184*** (6.97)	0.0184*** (6.99)	-0.0117*** (-5.42)	-0.0114*** (-5.28)	-0.0104*** (-4.98)	0.00592* (2.00)	0.00588* (2.01)	0.00430 (1.46)
Aschl	0.0124*** (3.50)	0.0114** (3.23)	0.0113** (3.13)	0.00252 (0.85)	0.00275 (0.93)	-0.00464 (-1.37)	-0.00445 (-1.16)	-0.00390 (-1.02)	-0.00237 (-0.59)
Hschl	0.0366*** (18.82)	0.0337*** (17.34)	0.0308*** (15.91)	-0.0239*** (-12.91)	-0.0232*** (-12.46)	-0.0196*** (-10.59)	-0.00648** (-3.13)	-0.00503* (-2.43)	-0.00321 (-1.56)
chi2	1533.2***	1896.2***	2327.4***	678.0***	823.3***	1363.9***	1403.8***	1419.0***	2175.5***
chow test	343.11***	293.69***	250.62***	20.43***	15.23***	6.84	184.14***	172.70***	117.61***
N	44655	44655	44655	44655	44655	44655	44655	44655	44655

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.9: Effect of Education on Health Outcomes by Gender: Male

	(1) Baseline bmi	(2) + Income bmi	(3) + controls bmi	(4) Baseline hypertensive	(5) + Income hypertensive	(6) + controls hypertensive	(7) Baseline heart_attack	(8) + Income heart_attack	(9) + controls heart_attack	(10) Baseline diabetes	(11) + Income diabetes	(12) + controls diabetes
yrsvchl	-0.0507* (-11.97)	-0.0521* (-11.88)	-0.0524* (-11.70)	-0.0330* (-7.39)	-0.0287* (-6.22)	-0.0266* (-5.61)	-0.0487* (-7.82)	-0.0371* (-5.67)	-0.0321* (-4.76)	-0.0467* (-8.44)	-0.0398* (-6.93)	-0.0350* (-5.92)
black	-0.688** (-5.93)	-0.674** (-5.81)	-0.663** (-5.69)	-0.0858* (-0.72)	-0.0965* (-0.81)	-0.138* (-1.15)	-0.860** (-4.73)	-0.890** (-4.81)	-0.934** (-5.09)	-0.316* (-2.24)	-0.331* (-2.33)	-0.354* (-2.50)
asian	-0.626** (-3.78)	-0.626** (-3.78)	-1.174** (-5.91)	-0.502* (-3.00)	-0.496** (-2.97)	-0.693** (-3.70)	-0.635* (-2.25)	-0.608* (-2.13)	-0.671* (-2.10)	-0.370* (-1.83)	-0.360* (-1.78)	-0.413* (-1.81)
hispanic	-0.672** (-8.85)	-0.662** (-8.70)	-0.618** (-7.94)	-0.776** (-9.49)	-0.770** (-9.40)	-0.675** (-8.02)	-1.024** (-7.70)	-1.012** (-7.55)	-0.956** (-7.98)	-0.250* (-2.53)	-0.240* (-2.42)	-0.133* (-1.30)
Bschl	0.0638** (7.14)	0.0632** (7.06)	0.0619** (6.91)	0.0280** (3.05)	0.0279** (3.04)	0.0286** (3.08)	0.0507** (3.48)	0.0498** (3.35)	0.0524** (3.56)	0.0453** (4.10)	0.0449** (4.04)	0.0468** (4.25)
Aschl	0.00216 (0.18)	0.00227 (0.19)	0.0308* (2.32)	0.0313* (2.67)	0.0306* (2.61)	0.0400** (3.17)	0.0286* (1.36)	0.0254* (1.19)	0.0292* (1.29)	0.0400** (2.79)	0.0387** (2.69)	0.0413** (2.69)
Hschl	0.0555** (9.07)	0.0552** (8.98)	0.0530** (8.54)	0.0516** (7.74)	0.0500** (7.47)	0.0439** (6.47)	0.0613** (5.27)	0.0573** (4.85)	0.0550** (4.62)	0.0332** (4.07)	0.0306** (3.71)	0.0251** (3.00)
smoke	-0.265** (-13.11)	-0.261** (-12.83)	-0.246** (-11.96)	-0.0621** (-2.90)	-0.0708** (-3.29)	-0.0642** (-2.93)	0.159** (4.50)	0.134** (3.76)	0.127** (3.51)	-0.137** (-4.63)	-0.151** (-5.07)	-0.145** (-4.75)
seatbelt	-0.195** (-9.72)	-0.195** (-9.70)	-0.207** (-10.19)	-0.0446* (-2.04)	-0.0433* (-1.98)	-0.0732** (-3.29)	-0.0713* (-1.99)	-0.0682* (-1.89)	-0.0640* (-1.74)	-0.0565* (-1.96)	-0.0535* (-1.86)	-0.0710* (-2.42)
exercise	-0.314** (-21.26)	-0.317** (-21.40)	-0.313** (-20.95)	-0.188** (-12.09)	-0.184** (-11.85)	-0.165** (-10.50)	-0.235** (-8.98)	-0.225** (-8.52)	-0.202** (-7.60)	-0.252** (-12.35)	-0.245** (-12.00)	-0.217** (-10.50)
_lpovent_4	0.0611** (3.18)	0.0611** (3.18)	0.0461* (2.31)	0.0461* (2.31)	-0.0414* (-2.05)	-0.0283* (-1.35)	-0.162** (-4.90)	-0.162** (-4.90)	-0.125** (-3.70)	-0.125** (-3.70)	-0.0674** (-2.58)	-0.0445* (-1.63)
_lpovent_5	0.0426* (1.98)	0.0426* (1.98)	0.0286* (1.25)	0.0286* (1.25)	-0.0856** (-3.83)	-0.0597* (-2.52)	-0.253** (-6.86)	-0.253** (-6.86)	-0.197** (-5.09)	-0.197** (-5.09)	-0.143** (-4.83)	-0.109** (-3.47)
midwest			0.104** (3.58)	0.104** (3.58)	0.0190** (0.62)	0.0190** (0.62)	0.0444* (0.88)	0.0444* (0.88)	0.0444* (0.88)	0.0444* (0.88)	0.0444* (0.88)	0.0444* (0.88)
south			0.129** (4.93)	0.129** (4.93)	0.0563* (2.05)	0.0563* (2.05)	0.0336* (0.73)	0.0336* (0.73)	0.0336* (0.73)	0.0336* (0.73)	0.0336* (0.73)	0.0205* (0.56)
west			0.0462 (1.61)	0.0462 (1.61)	-0.0170 (-0.57)	-0.0170 (-0.57)	-0.00854 (-0.17)	-0.00854 (-0.17)	-0.00854 (-0.17)	-0.00854 (-0.17)	-0.00854 (-0.17)	0.008855 (0.21)
urban			-0.0323 (-1.45)	-0.0323 (-1.45)	-0.0418 (-1.76)	-0.0418 (-1.76)	-0.0640 (-1.71)	-0.0640 (-1.71)	-0.0640 (-1.71)	-0.0640 (-1.71)	-0.0640 (-1.71)	-0.0878** (-2.83)
married			0.0804** (4.21)	0.0804** (4.21)	0.0850* (3.74)	0.0850* (3.74)	0.00644 (0.19)	0.00644 (0.19)	0.00644 (0.19)	0.00644 (0.19)	0.00644 (0.19)	0.0638* (2.31)
coglimt			0.0850* (2.19)	0.0850* (2.19)	0.374** (9.34)	0.374** (9.34)	0.374** (9.34)	0.374** (9.34)	0.374** (9.34)	0.374** (9.34)	0.374** (9.34)	0.379** (8.87)
risk_attitude			-0.0596** (-3.73)	-0.0596** (-3.73)	-0.0973** (-5.75)	-0.0973** (-5.75)	-0.0973** (-5.75)	-0.0973** (-5.75)	-0.0973** (-5.75)	-0.0973** (-5.75)	-0.105** (-4.58)	-0.105** (-4.58)
private			0.117** (4.81)	0.117** (4.81)	0.217** (7.98)	0.217** (7.98)	0.158** (2.83)	0.158** (2.83)	0.158** (2.83)	0.158** (2.83)	0.195** (4.86)	0.195** (4.86)
public			0.119** (3.72)	0.119** (3.72)	0.320** (9.38)	0.320** (9.38)	0.320** (9.38)	0.320** (9.38)	0.320** (9.38)	0.320** (9.38)	0.320** (9.38)	0.335** (8.87)
_cons	0.254** (2.68)	0.237* (2.48)	0.813** (6.12)	-0.876** (-7.59)	-0.893** (-7.71)	-0.747** (-5.11)	-1.702** (-6.44)	-1.718** (-6.42)	-1.886** (-6.41)	-2.130** (-6.41)	-2.158** (-6.49)	-2.244** (-6.32)
_lpage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_ldatayr*	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1479.8***	1489.3***	1602.2***	4367.1***	4378.2***	4738.2***	1365.7***	1391.0***	1503.1***	1538.1***	1579.1***	1800.1***
Chow test	110.7***	108.52***	93.10***	60.76***	56.77***	45.45***	33.56***	29.16***	28.35***	27.11***	24.62***	23.13***
N	44655	44655	44655	44655	44655	44655	43828	43828	43828	44655	44655	44655

Table B.10: Marginal Effect of Education on Health Outcomes by Gender: Male

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrschl	-0.0168*** (-12.06)	-0.0172*** (-11.96)	-0.0172*** (-11.78)	-0.0101*** (-7.41)	-0.00882*** (-6.23)	-0.00804*** (-5.62)	-0.00433*** (-7.76)	-0.00328*** (-5.65)	-0.00281*** (-4.75)	-0.00747*** (-8.42)	-0.00635*** (-6.92)	-0.00551*** (-5.91)
Bschl	0.0211*** (7.15)	0.0209*** (7.08)	0.0203*** (6.93)	0.00861** (3.05)	0.00859** (3.04)	0.00866** (3.08)	0.00450*** (3.48)	0.00440*** (3.35)	0.00459*** (3.55)	0.00724*** (4.10)	0.00717*** (4.04)	0.00737*** (4.24)
Aschl	0.000715 (0.18)	0.000751 (0.19)	0.0101* (2.32)	0.00964** (2.67)	0.00942** (2.61)	0.0121** (3.17)	0.00254 (1.36)	0.00225 (1.19)	0.00256 (1.29)	0.00639** (2.79)	0.00618** (2.69)	0.00650** (2.69)
Hschl	0.0183*** (9.10)	0.0182*** (9.02)	0.0174*** (8.58)	0.0159*** (7.76)	0.0154*** (7.49)	0.0133*** (6.48)	0.00544*** (5.24)	0.00507*** (4.83)	0.00482*** (4.60)	0.00531*** (4.06)	0.00488*** (3.71)	0.00395** (3.00)
smoke	-0.0876*** (-13.22)	-0.0861*** (-12.93)	-0.0807*** (-12.05)	-0.0191** (-2.90)	-0.0218** (-3.29)	-0.0194** (-2.94)	0.0141*** (4.48)	0.0119*** (3.74)	0.0111*** (3.50)	-0.0219*** (-4.63)	-0.0241*** (-5.07)	-0.0228*** (-4.76)
seatbelt	-0.0644*** (-9.75)	-0.0643*** (-9.74)	-0.0679*** (-10.23)	-0.0137* (-2.04)	-0.0133* (-1.98)	-0.0221*** (-3.30)	-0.00633* (-1.99)	-0.00603 (-1.89)	-0.00561 (-1.74)	-0.00903* (-1.96)	-0.00855 (-1.86)	-0.0112* (-2.42)
exercise	-0.104*** (-21.61)	-0.105*** (-21.76)	-0.103*** (-21.29)	-0.0579*** (-12.18)	-0.0567*** (-11.93)	-0.0500*** (-10.56)	-0.0208*** (-8.90)	-0.0197*** (-8.45)	-0.0177*** (-7.56)	-0.0402*** (-12.32)	-0.0391*** (-11.98)	-0.0342*** (-10.49)
chi2	1479.8***	1489.3***	1602.2***	4367.1***	4378.2***	4738.2***	1365.7***	1391.0***	1503.1***	1538.1***	1579.1***	1800.1***
Chow test	110.75***	108.52***	93.10***	60.76***	56.77***	45.45***	33.56***	29.16***	28.35***	27.11***	24.62***	23.13***
N	44655	44655	44655	44655	44655	44655	43828	43828	43828	44655	44655	44655

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.11: Effect of Education on Health Behaviors by Gender: Female

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.154*** (-29.97)	-0.122*** (-23.44)	-0.115*** (-21.59)	0.0722*** (15.67)	0.0561*** (11.56)	0.0436*** (8.66)	0.0551*** (15.78)	0.0439*** (12.06)	0.0370*** (9.99)
black	-0.760*** (-6.71)	-0.842*** (-7.48)	-0.946*** (-8.29)	0.355*** (3.37)	0.378*** (3.54)	0.376*** (3.45)	-0.245** (-2.87)	-0.193* (-2.27)	-0.141 (-1.64)
asian	-1.744*** (-12.40)	-1.628*** (-11.26)	-1.859*** (-10.81)	0.708*** (5.10)	0.644*** (4.54)	0.691*** (3.85)	0.372*** (3.32)	0.332** (2.97)	0.336** (2.84)
hispanic	-2.558*** (-27.28)	-2.458*** (-25.87)	-2.359*** (-24.28)	1.391*** (15.88)	1.322*** (14.80)	1.045*** (11.42)	0.00400 (0.06)	-0.0335 (-0.54)	-0.150* (-2.37)
Bschl	0.0489*** (5.60)	0.0464*** (5.32)	0.0476*** (5.41)	-0.0285*** (-3.50)	-0.0264** (-3.19)	-0.0273** (-3.23)	0.00172 (0.26)	0.000541 (0.08)	-0.00169 (-0.26)
Aschl	0.0817*** (8.11)	0.0724*** (6.92)	0.0742*** (6.25)	-0.0254* (-2.52)	-0.0206* (-1.99)	-0.0186 (-1.47)	-0.0346*** (-4.29)	-0.0317*** (-3.95)	-0.0335*** (-4.05)
Hschl	0.149*** (19.91)	0.135*** (17.46)	0.129*** (16.57)	-0.0687*** (-9.50)	-0.0604*** (-8.11)	-0.0503*** (-6.66)	-0.0155** (-3.13)	-0.0105* (-2.12)	-0.00404 (-0.80)
_Ipoocat_4		-0.291*** (-14.96)	-0.142*** (-6.93)		0.104*** (5.11)	0.0134 (0.61)		0.126*** (8.47)	0.0731*** (4.64)
_Ipoocat_5		-0.537*** (-22.84)	-0.306*** (-12.11)		0.256*** (10.73)	0.112*** (4.28)		0.182*** (10.96)	0.120*** (6.61)
midwest			0.0713* (2.40)			-0.0295 (-1.02)			0.0510* (2.38)
south			-0.00867 (-0.32)			0.203*** (7.56)			-0.0266 (-1.38)
west			-0.126*** (-3.99)			0.389*** (11.96)			0.110*** (5.15)
urban			-0.0533* (-2.26)			0.289*** (12.70)			0.0106 (0.62)
married			-0.325*** (-16.65)			0.135*** (6.75)			-0.0190 (-1.36)
coglimt			0.208*** (5.89)			-0.0563 (-1.57)			-0.507*** (-17.81)
risk_attitude			0.163*** (8.62)			-0.151*** (-7.38)			0.131*** (8.70)
private			-0.179*** (-6.78)			0.0881** (3.12)			-0.00856 (-0.43)
public			0.00000487 (0.00)			-0.0561 (-1.80)			-0.168*** (-7.39)
_cons	1.461*** (15.72)	1.246*** (13.47)	2.035*** (15.36)	-0.158 (-1.76)	-0.0382 (-0.42)	-0.861*** (-6.63)	-0.546*** (-7.47)	-0.480*** (-6.52)	-0.400*** (-4.06)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Iatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1939.0***	2401.2***	2822.1***	828.6***	931.4***	1712.9***	1370.8***	1509.9***	2158.0***
chow test	403.37***	309.14***	278.43***	36.37***	18.63***	16.89***	90.41***	66.10***	45.55***
N	55749	55749	55749	55749	55749	55749	55749	55749	55749

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.12: Marginal Effect of Education on Health Behaviors by Gender: Female

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0358*** (-31.07)	-0.0279*** (-23.96)	-0.0257*** (-21.98)	0.0129*** (15.63)	0.0100*** (11.54)	0.00750*** (8.65)	0.0214*** (15.94)	0.0170*** (12.13)	0.0141*** (10.03)
Bschl	0.0114*** (5.61)	0.0106*** (5.33)	0.0106*** (5.42)	-0.00511*** (-3.50)	-0.00471** (-3.19)	-0.00469** (-3.23)	0.000666 (0.26)	0.000210 (0.08)	-0.000646 (-0.26)
Aschl	0.0190*** (8.15)	0.0166*** (6.95)	0.0165*** (6.27)	-0.00454* (-2.52)	-0.00367* (-1.99)	-0.00321 (-1.47)	-0.0134*** (-4.29)	-0.0123*** (-3.95)	-0.0128*** (-4.05)
Hschl	0.0348*** (20.23)	0.0309*** (17.67)	0.0288*** (16.74)	-0.0123*** (-9.47)	-0.0108*** (-8.09)	-0.00866*** (-6.64)	-0.00602** (-3.13)	-0.00407* (-2.12)	-0.00154 (-0.80)
chi2	1939.0***	2401.2***	2822.1***	828.6***	931.4***	1712.9***	1370.8***	1509.9***	2158.0***
chow test	403.37***	309.14***	278.43***	36.37***	18.63***	16.89***	90.41***	66.10***	45.55***
N	55749	55749	55749	55749	55749	55749	55749	55749	55749

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.13: Effect of Education on Health Outcomes by Gender: Female

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrsschl	-0.0670*** (-15.84)	-0.0516*** (-11.83)	-0.0537*** (-12.13)	-0.0530*** (-11.66)	-0.0415*** (-8.89)	-0.0402*** (-8.47)	-0.0345*** (-4.47)	-0.0172*** (-2.11)	-0.0151*** (-1.83)	-0.0642*** (-11.21)	-0.0507*** (-8.52)	-0.0466*** (-7.72)
black	-0.238*** (-2.45)	-0.266*** (-2.74)	-0.295*** (-3.01)	0.388*** (3.42)	0.365*** (3.25)	0.299*** (2.99)	-0.192*** (-1.17)	-0.223*** (-1.32)	-0.273*** (-1.61)	0.0639*** (0.52)	0.0237*** (0.19)	-0.0376*** (-0.30)
asian	-0.898*** (-7.24)	-0.850*** (-6.86)	-1.418*** (-9.59)	-0.279*** (-2.01)	-0.235*** (-1.70)	-0.358*** (-2.48)	-0.554*** (-2.31)	-0.480*** (-1.95)	-0.719*** (-2.56)	-0.191*** (-1.22)	-0.131*** (-0.84)	-0.206*** (-1.25)
hispanic	-0.553*** (-7.73)	-0.494*** (-6.89)	-0.457*** (-6.27)	-0.491*** (-6.23)	-0.444*** (-5.64)	-0.369*** (-4.56)	-0.470*** (-3.40)	-0.408*** (-2.89)	-0.405*** (-2.42)	-0.225*** (-1.94)	-0.182*** (-1.19)	-0.115*** (-0.84)
Bschl	0.0517*** (6.96)	0.0501*** (6.74)	0.0513*** (6.88)	0.0148*** (1.71)	0.0138*** (1.60)	0.0140*** (1.62)	0.0233*** (1.78)	0.0203*** (1.49)	0.0217*** (1.58)	0.0274*** (2.87)	0.0267*** (2.75)	0.0294*** (3.02)
Aschl	0.0237*** (2.64)	0.0198*** (2.19)	0.0367*** (3.49)	0.0235*** (2.31)	0.0200*** (1.98)	0.0246*** (2.39)	0.0291*** (1.60)	0.0226*** (1.20)	0.0291*** (1.41)	0.0191*** (1.62)	0.0146*** (1.22)	0.0174*** (1.43)
Hschl	0.0497*** (8.75)	0.0417*** (7.29)	0.0412*** (7.16)	0.0363*** (5.67)	0.0300*** (4.66)	0.0265*** (4.05)	0.0294*** (2.37)	0.0199*** (1.55)	0.0194*** (1.49)	0.0407*** (5.32)	0.0340*** (4.38)	0.0302*** (3.85)
smoke	-0.158*** (-7.94)	-0.189*** (-9.41)	-0.214*** (-10.51)	0.00933*** (0.42)	-0.0124*** (-0.56)	-0.0299*** (-1.33)	0.315*** (8.12)	0.279*** (7.10)	0.257*** (6.38)	-0.0532*** (-1.85)	-0.0820*** (-2.83)	-0.102*** (-3.46)
seatbelt	-0.297*** (-13.79)	-0.284*** (-13.20)	-0.274*** (-12.59)	-0.0814*** (-3.34)	-0.0713*** (-2.93)	-0.0729*** (-2.96)	-0.125*** (-2.85)	-0.111*** (-2.52)	-0.104*** (-2.30)	-0.152*** (-5.17)	-0.139*** (-4.73)	-0.139*** (-4.64)
exercise	-0.371*** (-28.45)	-0.364*** (-27.86)	-0.362*** (-27.44)	-0.221*** (-15.58)	-0.214*** (-15.10)	-0.193*** (-13.48)	-0.181*** (-6.28)	-0.167*** (-5.75)	-0.131*** (-4.44)	-0.263*** (-14.37)	-0.253*** (-13.76)	-0.220*** (-11.87)
_l_povcat_4	-0.0701*** (-4.20)	-0.0701*** (-4.20)	-0.0311*** (-1.76)	-0.0311*** (-1.76)	-0.0454*** (-2.48)	0.00723*** (0.38)	-0.628*** (-4.46)	-0.212*** (-2.48)	-0.158*** (-2.66)	-0.129*** (-2.83)	-0.129*** (-2.83)	-0.0671*** (-2.83)
_l_povcat_5	-0.262*** (-13.46)	-0.262*** (-13.46)	-0.189*** (-8.97)	-0.189*** (-8.97)	-0.196*** (-9.38)	-0.114*** (-5.08)	-0.343*** (-8.15)	-0.343*** (-8.15)	-0.266*** (-5.94)	-0.266*** (-5.94)	-0.266*** (-5.94)	-0.179*** (-6.11)
midwest			0.133*** (5.14)	0.133*** (5.14)	0.133*** (5.14)	0.0529*** (1.90)	0.164*** (3.02)	0.164*** (3.02)	0.164*** (3.02)	0.164*** (3.02)	0.164*** (3.02)	-0.00224*** (-0.06)
south			0.0853*** (3.68)	0.0853*** (3.68)	0.0853*** (3.68)	0.0833*** (3.33)	0.0833*** (3.33)	0.0833*** (3.33)	0.0833*** (3.33)	0.0833*** (3.33)	0.0833*** (3.33)	0.0543*** (1.68)
west			0.0742*** (2.88)	0.0742*** (2.88)	0.0742*** (2.88)	-0.00427*** (-0.15)	-0.00427*** (-0.15)	-0.00427*** (-0.15)	0.0640*** (1.12)	0.0640*** (1.12)	0.0640*** (1.12)	-0.0220*** (-0.61)
urban			-0.0968*** (-4.82)	-0.0968*** (-4.82)	-0.0968*** (-4.82)	-0.101*** (-4.61)	-0.101*** (-4.61)	-0.101*** (-4.61)	0.0117*** (0.29)	0.0117*** (0.29)	0.0117*** (0.29)	-0.0404*** (-1.42)
married			-0.1111*** (-6.71)	-0.1111*** (-6.71)	-0.1111*** (-6.71)	-0.0586*** (-3.22)	-0.0586*** (-3.22)	-0.0586*** (-3.22)	-0.0497*** (-1.35)	-0.0497*** (-1.35)	-0.0497*** (-1.35)	-0.0172*** (-0.73)
coglimit			0.0219*** (0.73)	0.0219*** (0.73)	0.0219*** (0.73)	0.259*** (8.08)	0.259*** (8.08)	0.259*** (8.08)	0.346*** (7.68)	0.346*** (7.68)	0.346*** (7.68)	0.322*** (9.36)
risk_attitude			-0.0599*** (-3.58)	-0.0599*** (-3.58)	-0.0599*** (-3.58)	-0.0759*** (-4.44)	-0.0759*** (-4.44)	-0.0759*** (-4.44)	0.0880*** (2.51)	0.0880*** (2.51)	0.0880*** (2.51)	-0.0414*** (-1.79)
private			0.0762*** (3.30)	0.0762*** (3.30)	0.0762*** (3.30)	0.117*** (4.44)	0.117*** (4.44)	0.117*** (4.44)	0.0752*** (1.29)	0.0752*** (1.29)	0.0752*** (1.29)	0.145*** (4.01)
public			0.161*** (6.16)	0.161*** (6.16)	0.161*** (6.16)	0.272*** (9.37)	0.272*** (9.37)	0.272*** (9.37)	0.202*** (3.27)	0.202*** (3.27)	0.202*** (3.27)	0.356*** (9.36)
_cons	0.540*** (6.23)	0.414*** (4.75)	1.539*** (13.10)	-0.840*** (-7.55)	-0.940*** (-8.47)	-0.724*** (-5.34)	-5.267*** (-46.54)	-5.382*** (-44.05)	-5.255*** (-24.29)	-1.293*** (-7.89)	-1.382*** (-8.37)	-1.461*** (-7.57)
_l_age*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
_l_datayr*	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
chi2	2882.8***	3033.9***	3144.7***	6871.4***	6966.1***	7226.3***	903.64***	979.29***	1130.41***	2069.1***	2134.1***	2422.3***
Chow test	92.19***	72.09***	71.56***	32.69***	22.09***	17.88***	7.37	3.87	4.38	28.95***	20.41***	17.20***
N	55749	55749	55749	55749	55749	55749	51453	51453	51453	55749	55749	55749

Table B.14: Marginal Effect of Education on Health Outcomes by Gender: Female

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrsschl	-0.0226*** (-16.02)	-0.0173*** (-11.91)	-0.0178*** (-12.21)	-0.0151*** (-11.73)	-0.0118*** (-8.92)	-0.0113*** (-8.50)	-0.00210*** (-4.41)	-0.00104* (-2.12)	-0.000900 (-1.83)	-0.0102*** (-11.19)	-0.00800*** (-8.52)	-0.00725*** (-7.72)
Bschl	0.0174*** (6.97)	0.0168*** (6.76)	0.0170*** (6.89)	0.00422 (1.71)	0.00390 (1.60)	0.00392 (1.62)	0.00142 (1.77)	0.00123 (1.48)	0.00129 (1.58)	0.00434** (2.87)	0.00421** (2.75)	0.00456** (3.01)
Aschl	0.00799** (2.64)	0.00663* (2.19)	0.0122*** (3.49)	0.00667* (2.31)	0.00568* (1.98)	0.00688* (2.39)	0.00178 (1.60)	0.00137 (1.20)	0.00173 (1.41)	0.00302 (1.62)	0.00230 (1.22)	0.00271 (1.43)
Hschl	0.0168*** (8.78)	0.0140*** (7.30)	0.0137*** (7.17)	0.0103*** (5.68)	0.00851*** (4.67)	0.00742*** (4.06)	0.00179* (2.36)	0.00120 (1.55)	0.00116 (1.49)	0.00645*** (5.32)	0.00537*** (4.38)	0.00469*** (3.84)
smoke	-0.0533*** (-7.96)	-0.0635*** (-9.44)	-0.0711*** (-10.56)	0.00265 (0.42)	-0.00353 (-0.56)	-0.00837 (-1.33)	0.0192*** (7.81)	0.0168*** (7.10)	0.0153*** (6.35)	-0.00843 (-1.85)	-0.0129** (-2.83)	-0.0159*** (-3.46)
seatbelt	-0.100*** (-13.89)	-0.0955*** (-13.28)	-0.0909*** (-12.66)	-0.0231*** (-3.34)	-0.0202** (-2.93)	-0.0204** (-2.96)	-0.00760** (-2.83)	-0.00674* (-2.52)	-0.00621* (-2.29)	-0.0240*** (-5.17)	-0.0219*** (-4.73)	-0.0216*** (-4.64)
exercise	-0.125*** (-29.13)	-0.122*** (-28.49)	-0.120*** (-28.04)	-0.0628*** (-15.71)	-0.0608*** (-15.22)	-0.0540*** (-13.57)	-0.0110*** (-6.14)	-0.0101*** (-5.76)	-0.00780*** (-4.44)	-0.0417*** (-14.34)	-0.0399*** (-13.74)	-0.0342*** (-11.85)
chi2	2882.8***	3033.9***	3144.7***	6871.4***	6966.1***	7226.3***	903.64***	979.29***	1130.41***	2069.1	2134.1***	2422.3***
Chow test	92.19***	72***	71.56***	32.69***	22.09***	17.88***	7.37	3.87	4.38	28.95***	20.41***	17.20***
N	55749	55749	55749	55749	55749	55749	51453	51453	51453	55749	55749	55749

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.15: Effect of Education on Health Behaviors by Age Group: 25-44 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.217*** (-30.10)	-0.186*** (-25.62)	-0.172*** (-23.08)	0.0989*** (18.09)	0.0895*** (15.61)	0.0750*** (12.71)	0.0320*** (7.18)	0.0215*** (4.59)	0.0164*** (3.45)
black	-1.103*** (-6.00)	-1.160*** (-6.62)	-1.280*** (-7.31)	0.771*** (5.47)	0.769*** (5.45)	0.729*** (5.13)	-0.247* (-2.11)	-0.213 (-1.83)	-0.157 (-1.34)
asian	-1.532*** (-6.54)	-1.534*** (-6.76)	-1.648*** (-6.40)	0.151 (0.68)	0.148 (0.68)	0.677** (2.60)	-0.425* (-2.58)	-0.419* (-2.55)	-0.768*** (-4.25)
hispanic	-3.324*** (-29.36)	-3.220*** (-28.74)	-3.012*** (-26.23)	2.080*** (20.61)	2.034*** (19.96)	1.686*** (16.05)	-0.330*** (-4.28)	-0.368*** (-4.75)	-0.457*** (-5.77)
Bschl	0.0704*** (5.05)	0.0684*** (5.13)	0.0713*** (5.36)	-0.0565*** (-5.31)	-0.0548*** (-5.15)	-0.0547*** (-5.11)	0.00852 (0.97)	0.00787 (0.90)	0.00445 (0.51)
Aschl	0.0814*** (4.96)	0.0809*** (5.09)	0.0893*** (5.17)	0.0214 (1.38)	0.0216 (1.41)	-0.0101 (-0.59)	0.0134 (1.18)	0.0131 (1.16)	0.0307* (2.56)
Hschl	0.209*** (23.95)	0.195*** (22.28)	0.183*** (20.48)	-0.115*** (-14.47)	-0.110*** (-13.63)	-0.0966*** (-11.67)	0.00990 (1.65)	0.0145* (2.41)	0.0196** (3.21)
female	-0.212*** (-11.04)	-0.261*** (-13.45)	-0.245*** (-12.12)	0.375*** (19.38)	0.386*** (19.91)	0.376*** (18.68)	-0.211*** (-14.27)	-0.198*** (-13.33)	-0.167*** (-10.95)
_Iповcat_4		-0.262*** (-12.47)	-0.132*** (-5.91)		0.0227 (1.05)	-0.0334 (-1.44)		0.0950*** (5.62)	0.0592** (3.27)
_Iповcat_5		-0.484*** (-18.45)	-0.317*** (-11.32)		0.134*** (5.20)	0.0408 (1.46)		0.152*** (7.64)	0.119*** (5.57)
midwest			0.124*** (3.68)			-0.133*** (-4.13)			0.0290 (1.14)
south			0.0385 (1.24)			0.149*** (4.88)			-0.0507* (-2.18)
west			-0.116*** (-3.39)			0.319*** (9.17)			0.0994*** (3.97)
urban			-0.0649* (-2.41)			0.343*** (13.64)			-0.0179 (-0.86)
married			-0.311*** (-15.05)			0.113*** (5.47)			-0.0794*** (-5.01)
coglimt			0.202*** (3.47)			0.105 (1.76)			-0.354*** (-7.34)
risk_attitude			0.182*** (9.87)			-0.189*** (-9.97)			0.139*** (9.08)
private			-0.218*** (-8.62)			0.0605* (2.31)			0.0363 (1.79)
public			0.0317 (0.97)			-0.0591 (-1.71)			-0.131*** (-4.93)
_cons	2.537*** (23.42)	2.366*** (22.14)	2.494*** (17.51)	-0.912*** (-10.30)	-0.837*** (-9.34)	-1.647*** (-12.23)	0.00459 (0.06)	0.0654 (0.87)	0.497*** (4.72)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Idatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1878.7***	2389.5***	2870.6***	1418.6***	1457.7***	2161.1***	771.0***	835.9***	1231.0***
Chow test	616.42***	522.92***	434.19***	3.34	6.04	14.31***	235.32***	209.83***	142.19***
N	41417	41417	41417	41417	41417	41417	41417	41417	41417

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.16: Marginal Effect of Education on Health Behaviors by Age Group: 25-44 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0571 ^{***} (-32.32)	-0.0483 ^{***} (-26.93)	-0.0435 ^{***} (-24.03)	0.0221 ^{***} (18.24)	0.0200 ^{***} (15.71)	0.0161 ^{***} (12.76)	0.0123 ^{***} (7.20)	0.00828 ^{***} (4.60)	0.00626 ^{***} (3.45)
Bschl	0.0185 ^{***} (5.06)	0.0177 ^{***} (5.14)	0.0180 ^{***} (5.38)	-0.0126 ^{***} (-5.32)	-0.0122 ^{***} (-5.15)	-0.0117 ^{***} (-5.11)	0.00328 (0.97)	0.00303 (0.90)	0.00170 (0.51)
Aschl	0.0214 ^{***} (4.99)	0.0210 ^{***} (5.11)	0.0225 ^{***} (5.19)	0.00477 (1.38)	0.00482 (1.40)	-0.00218 (-0.59)	0.00515 (1.18)	0.00504 (1.16)	0.0117 [*] (2.56)
Hschl	0.0551 ^{***} (25.01)	0.0507 ^{***} (23.06)	0.0461 ^{***} (21.08)	-0.0257 ^{***} (-14.51)	-0.0246 ^{***} (-13.67)	-0.0207 ^{***} (-11.69)	0.00382 (1.65)	0.00560 [*] (2.41)	0.00747 ^{**} (3.21)
chi2	1878.7 ^{***}	2389.5 ^{***}	2870.6 ^{***}	1418.6 ^{***}	1457.7 ^{***}	2161.1 ^{***}	771.0 ^{***}	835.9 ^{***}	1231.0 ^{***}
Chow test	616.42 ^{***}	522.92 ^{***}	434.19 ^{***}	3.34	6.04	14.31 ^{***}	235.32 ^{***}	209.83 ^{***}	142.19 ^{***}
N	41417	41417	41417	41417	41417	41417	41417	41417	41417

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.17: Effect of Education on Health Outcomes by Age group: 25-44 years

	(1) Baseline bmi	(2) + Income bmi	(3) + controls bmi	(4) Baseline hypertensive	(5) + Income hypertensive	(6) + controls hypertensive	(7) Baseline heart_attack	(8) + Income heart_attack	(9) + controls heart_attack	(10) Baseline diabetes	(11) + Income diabetes	(12) + controls diabetes
yrsschl	-0.0775*** (-14.00)	-0.0648*** (-11.37)	-0.0657*** (-11.28)	-0.0461*** (-7.25)	-0.0356*** (-5.41)	-0.0327*** (-4.81)	-0.0711*** (-4.03)	-0.0525*** (-2.67)	-0.0557*** (-2.27)	-0.0682*** (-6.83)	-0.0557*** (-4.53)	-0.0498*** (-4.53)
black	-0.487*** (-3.54)	-0.494*** (-3.60)	-0.533*** (-3.85)	-0.165*** (-1.06)	-0.193*** (-1.23)	-0.246*** (-1.27)	-0.442*** (-1.08)	-0.514*** (-1.13)	-0.548*** (-1.94)	-0.180*** (-0.75)	-0.233*** (-0.94)	-0.247*** (-0.99)
asian	-0.352*** (-1.75)	-0.362*** (-1.81)	-1.306*** (-5.34)	-0.539*** (-2.36)	-0.556*** (-2.40)	-0.947*** (-3.36)	-0.860*** (-1.55)	-0.947*** (-1.55)	-1.994*** (-3.66)	-0.587*** (-1.75)	-0.605*** (-1.75)	-0.516*** (-1.36)
hispanic	-0.893*** (-9.66)	-0.834*** (-9.01)	-0.730*** (-7.73)	-1.003*** (-8.79)	-0.973*** (-8.44)	-1.487*** (-6.59)	-1.487*** (-4.54)	-1.490*** (-4.18)	-1.298*** (-3.57)	-0.695*** (-4.33)	-0.670*** (-4.07)	-0.455*** (-2.69)
Bschl	0.0655*** (6.38)	0.0639*** (6.22)	0.0655*** (6.34)	0.0397*** (3.39)	0.0398*** (3.37)	0.0413*** (3.34)	0.0323*** (1.00)	0.0334*** (0.92)	0.0343*** (1.00)	0.0368*** (2.02)	0.0380*** (2.00)	0.0405*** (2.14)
Aschl	-0.00851*** (-0.61)	-0.00785*** (-0.57)	0.0414*** (2.57)	0.0282*** (1.78)	0.0292*** (1.82)	0.0498*** (2.69)	0.0344*** (0.91)	0.0400*** (0.91)	0.0895*** (1.76)	0.0431*** (1.86)	0.0442*** (1.84)	0.0399*** (1.60)
Hschl	0.0762*** (10.79)	0.0694*** (9.77)	0.0642*** (8.94)	0.0667*** (7.52)	0.0622*** (6.92)	0.0503*** (5.52)	0.0908*** (3.31)	0.0866*** (2.85)	0.0743*** (2.39)	0.0638*** (5.11)	0.0588*** (4.57)	0.0473*** (3.60)
smoke	-0.102*** (-4.82)	-0.120*** (-5.60)	-0.124*** (-5.72)	0.0464*** (1.85)	0.0296*** (1.17)	0.0187*** (0.73)	0.277*** (4.35)	0.235*** (3.63)	0.218*** (3.28)	-0.0246*** (-0.64)	-0.0481*** (-1.22)	-0.0476*** (-1.18)
seatbelt	-0.244*** (-11.20)	-0.239*** (-10.99)	-0.238*** (-10.79)	-0.112*** (-4.24)	-0.109*** (-4.12)	-0.120*** (-4.47)	-0.130*** (-1.70)	-0.126*** (-1.64)	-0.139*** (-1.11)	-0.0481*** (-1.15)	-0.0418*** (-1.00)	-0.0474*** (-1.11)
exercise	-0.256*** (-17.11)	-0.252*** (-16.80)	-0.252*** (-16.68)	-0.148*** (-8.19)	-0.144*** (-7.92)	-0.133*** (-7.27)	-0.150*** (-2.50)	-0.134*** (-2.24)	-0.116*** (-1.90)	-0.126*** (-4.49)	-0.119*** (-3.65)	-0.104*** (-3.65)
female	0.0495*** (2.81)	0.0346*** (1.96)	0.00306*** (0.17)	-0.126*** (-5.88)	-0.141*** (-6.54)	-0.177*** (-7.95)	-0.0929*** (-1.33)	-0.132*** (-1.87)	-0.151*** (-2.04)	0.0905*** (2.66)	0.0698*** (2.04)	0.0435*** (1.23)
_lpoecat_4												
_lpoecat_5												
midwest												
south												
west												
urban												
married												
coglimt												
risk_attitude												
private												
public												
_cons	0.517*** (5.65)	0.417*** (4.53)	1.213*** (9.49)	-0.712*** (-6.43)	-0.778*** (-6.97)	-0.580*** (-3.83)	-1.735*** (-5.09)	-1.800*** (-5.02)	-1.421*** (-3.02)	-1.510*** (-8.25)	-1.571*** (-8.40)	-1.779*** (-7.10)
_lpage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_ldatayr*	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1515.5	1573.6***	1725.6***	1051.1***	1078.5***	1430.1***	190.4***	178.0***	454.1***	385.4***	422.8***	551.7***
Chiow test	140.81***	118.28***	89.44***	57.12***	48.71***	34.2***	11.02*	8.18*	7.30	26.21***	21.08***	13.62***
N	41417	41417	41417	41417	41417	41417	39523	39523	39523	41417	41417	41417

Table B.18: Marginal Effect of Education on Health Outcomes by Age Group: 25-44 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrrschl	-0.0260*** (-14.15)	-0.0217*** (-11.45)	-0.0217*** (-11.36)	-0.00958*** (-7.26)	-0.00739*** (-5.41)	-0.00664*** (-4.81)	-0.000959*** (-3.87)	-0.000702*** (-2.62)	-0.000587*** (-2.24)	-0.00489*** (-6.72)	-0.00398*** (-5.22)	-0.00350*** (-4.50)
Bschl	0.0220*** (6.39)	0.0214*** (6.23)	0.0217*** (6.35)	0.00824*** (3.39)	0.00825*** (3.37)	0.00840*** (3.48)	0.000436 (0.99)	0.000446 (0.91)	0.000445 (0.99)	0.00264* (2.02)	0.00271* (2.00)	0.00285* (2.14)
Aschl	-0.00286 (-0.61)	-0.00263 (-0.57)	0.0137* (2.57)	0.00586 (1.78)	0.00606 (1.82)	0.0101** (2.69)	0.000464 (0.91)	0.000534 (0.91)	0.00116 (1.75)	0.00309 (1.86)	0.00316 (1.84)	0.00280 (1.60)
Hschl	0.0256*** (10.86)	0.0232*** (9.82)	0.0213*** (8.98)	0.0138*** (7.52)	0.0129*** (6.92)	0.0102*** (5.52)	0.00122** (3.19)	0.00116** (2.76)	0.000964* (2.33)	0.00457*** (5.07)	0.00420*** (4.54)	0.00333*** (3.59)
smoke	-0.0344*** (-4.83)	-0.0400*** (-5.61)	-0.0411*** (-5.73)	0.00963 (1.85)	0.00614 (1.17)	0.00381 (0.73)	0.00373*** (4.06)	0.00314*** (3.44)	0.00283** (3.13)	-0.00176 (-0.63)	-0.00344 (-1.22)	-0.00335 (-1.18)
seatbelt	-0.0817*** (-11.27)	-0.0800*** (-11.06)	-0.0786*** (-10.85)	-0.0233*** (-4.24)	-0.0225*** (-4.12)	-0.0244*** (-4.47)	-0.00175 (-1.68)	-0.00168 (-1.62)	-0.00180 (-1.74)	-0.00345 (-1.15)	-0.00299 (-1.00)	-0.00333 (-1.11)
exercise	-0.0859*** (-17.30)	-0.0842*** (-16.97)	-0.0835*** (-16.85)	-0.0308*** (-8.21)	-0.0298*** (-7.93)	-0.0271*** (-7.28)	-0.00203* (-2.45)	-0.00179* (-2.20)	-0.00150 (-1.88)	-0.00900*** (-4.45)	-0.00851*** (-4.20)	-0.00729*** (-3.62)
chi2	1515.5	1573.6***	1725.6***	1051.1***	1078.5***	1430.1***	190.4***	178.0***	454.1***	385.4***	422.8***	551.7***
Chow test	140.81***	118.28***	89.44***	57.12***	48.71***	34.24***	11.02*	8.18*	7.30	26.21***	21.08***	13.62***
N	41417	41417	41417	41417	41417	41417	39523	39523	39523	41417	41417	41417

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.19: Effect of Education on Health Behaviors by Age Group: 45-64 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.154*** (-27.51)	-0.126*** (-22.41)	-0.119*** (-20.55)	0.0736*** (15.21)	0.0625*** (12.34)	0.0506*** (9.62)	0.0563*** (14.18)	0.0435*** (10.56)	0.0342*** (8.17)
black	-0.928*** (-6.94)	-1.075*** (-8.20)	-1.167*** (-8.81)	0.385** (2.98)	0.425** (3.28)	0.402** (3.08)	-0.185 (-1.75)	-0.0840 (-0.80)	-0.0292 (-0.27)
asian	-1.651*** (-9.82)	-1.562*** (-9.09)	-1.629*** (-8.69)	0.849*** (5.19)	0.808*** (4.88)	0.980*** (4.55)	0.172 (1.20)	0.136 (0.95)	0.190 (1.26)
hispanic	-2.357*** (-24.05)	-2.296*** (-23.52)	-2.161*** (-21.48)	1.596*** (15.44)	1.560*** (14.95)	1.268*** (11.82)	0.211** (2.92)	0.186** (2.58)	0.0436 (0.59)
Bschl	0.0763*** (7.44)	0.0801*** (7.95)	0.0824*** (8.11)	-0.0216* (-2.15)	-0.0219* (-2.17)	-0.0234* (-2.31)	0.00171 (0.21)	-0.00251 (-0.31)	-0.00458 (-0.57)
Aschl	0.0939*** (7.73)	0.0850*** (6.82)	0.0863*** (6.59)	-0.0235* (-1.98)	-0.0195 (-1.62)	-0.0242 (-1.59)	-0.0171 (-1.66)	-0.0137 (-1.32)	-0.0169 (-1.60)
Hschl	0.152*** (19.07)	0.141*** (17.51)	0.133*** (16.28)	-0.0767*** (-8.74)	-0.0716*** (-8.04)	-0.0606*** (-6.68)	-0.0264*** (-4.49)	-0.0218*** (-3.70)	-0.0125* (-2.10)
female	-0.201*** (-10.36)	-0.228*** (-11.64)	-0.249*** (-12.41)	0.292*** (14.45)	0.302*** (14.92)	0.305*** (14.67)	-0.130*** (-8.63)	-0.120*** (-7.95)	-0.106*** (-6.95)
_Iповcat_4		-0.273*** (-12.31)	-0.130*** (-5.51)		0.0851*** (3.50)	0.0130 (0.49)		0.199*** (10.65)	0.0929*** (4.60)
_Iповcat_5		-0.506*** (-20.72)	-0.292*** (-10.74)		0.189*** (7.33)	0.0824** (2.79)		0.251*** (12.94)	0.134*** (6.09)
midwest			0.0955** (2.95)			-0.0537 (-1.67)			0.0307 (1.22)
south			0.0421 (1.42)			0.185*** (6.16)			-0.0195 (-0.86)
west			-0.0984** (-2.93)			0.338*** (9.45)			0.0875*** (3.50)
urban			-0.000677 (-0.03)			0.291*** (11.61)			-0.0519** (-2.61)
married			-0.288*** (-13.42)			0.140*** (6.08)			-0.0476** (-2.80)
coglimt			0.164*** (4.20)			-0.0105 (-0.25)			-0.448*** (-12.93)
risk_attitude			0.123*** (6.22)			-0.181*** (-8.40)			0.108*** (6.50)
private			-0.212*** (-7.67)			0.0870** (2.85)			0.0244 (1.09)
public			-0.0480 (-1.37)			0.0157 (0.41)			-0.322*** (-10.90)
_cons	1.502*** (18.43)	1.467*** (18.25)	2.076*** (16.13)	-0.150* (-2.02)	-0.122 (-1.62)	-1.213*** (-9.05)	-0.430*** (-7.06)	-0.445*** (-7.25)	-0.323** (-3.14)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Idatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1321.7***	1776.0***	2093.3***	899.8***	950.0***	1578.6***	652.2***	838.5***	1355.5***
Chow test	366.62***	311.47***	272.90***	24.04***	14.89***	5.67	76.47***	64.68***	45.12***
N	40195	40195	40195	40195	40195	40195	40195	40195	40195

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.20: Marginal Effect of Education on Health Behaviors by Age Group: 45-64 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0423 ^{***} (-28.72)	-0.0342 ^{***} (-23.02)	-0.0316 ^{***} (-21.00)	0.0151 ^{***} (15.28)	0.0128 ^{***} (12.38)	0.00998 ^{***} (9.65)	0.0219 ^{***} (14.34)	0.0168 ^{***} (10.63)	0.0131 ^{***} (8.20)
Bschl	0.0210 ^{***} (7.47)	0.0217 ^{***} (7.97)	0.0218 ^{***} (8.14)	-0.00443 [*] (-2.15)	-0.00449 [*] (-2.17)	-0.00462 [*] (-2.31)	0.000665 (0.21)	-0.000972 (-0.31)	-0.00175 (-0.57)
Aschl	0.0258 ^{***} (7.77)	0.0230 ^{***} (6.85)	0.0229 ^{***} (6.61)	-0.00482 [*] (-1.98)	-0.00400 (-1.62)	-0.00478 (-1.59)	-0.00664 (-1.66)	-0.00529 (-1.32)	-0.00645 (-1.60)
Hschl	0.0419 ^{***} (19.45)	0.0381 ^{***} (17.78)	0.0352 ^{***} (16.49)	-0.0157 ^{***} (-8.75)	-0.0146 ^{***} (-8.05)	-0.0120 ^{***} (-6.69)	-0.0103 ^{***} (-4.49)	-0.00843 ^{***} (-3.70)	-0.00476 [*] (-2.10)
chi2	1321.7 ^{***}	1776.0 ^{***}	2093.3 ^{***}	899.8 ^{***}	950.0 ^{***}	1578.6 ^{***}	652.2 ^{***}	838.5 ^{***}	1355.5 ^{***}
Chow test	366.62 ^{***}	311.47 ^{***}	272.90 ^{***}	24.04 ^{***}	14.89 ^{***}	5.67	76.47 ^{***}	64.68 ^{***}	45.12 ^{***}
N	40195	40195	40195	40195	40195	40195	40195	40195	40195

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.22: Marginal Effect of Education on Health Outcomes by Age Group: 45-64 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrsschl	-0.0198*** (-12.38)	-0.0178*** (-10.78)	-0.0168*** (-10.12)	-0.0183*** (-10.95)	-0.0156*** (-9.06)	-0.0134*** (-7.68)	-0.00524*** (-8.93)	-0.00390*** (-6.48)	-0.00306*** (-4.99)	-0.0137*** (-11.79)	-0.0113*** (-9.51)	-0.00919*** (-7.70)
Bschl	0.0193*** (6.08)	0.0196*** (6.17)	0.0192*** (6.04)	0.00359 (1.04)	0.00419 (1.22)	0.00340 (0.99)	0.00362** (2.94)	0.00379** (3.01)	0.00377** (3.05)	0.00721*** (3.37)	0.00769*** (3.59)	0.00761*** (3.64)
Aschl	0.0112** (2.75)	0.0107** (2.62)	0.0163*** (3.42)	0.0126** (3.06)	0.0119** (2.89)	0.0135** (3.26)	0.00338* (2.02)	0.00306 (1.79)	0.00349 (1.96)	0.0106** (3.82)	0.0101*** (3.62)	0.0104*** (3.66)
Hschl	0.0147*** (6.43)	0.0138*** (6.04)	0.0122*** (5.32)	0.0159*** (6.43)	0.0148*** (5.99)	0.0114*** (4.59)	0.00541*** (5.37)	0.00491*** (4.81)	0.00414*** (4.03)	0.00849*** (5.24)	0.00760*** (4.68)	0.00527** (3.25)
smoke	-0.100*** (-13.70)	-0.105*** (-14.19)	-0.108*** (-14.59)	-0.0229** (-3.00)	-0.0291*** (-3.79)	-0.0331*** (-4.31)	0.0169*** (6.20)	0.0137*** (5.00)	0.0120*** (4.36)	-0.0231*** (-4.32)	-0.0286*** (-5.31)	-0.0304*** (-5.60)
seatbelt	-0.0877*** (-10.99)	-0.0863*** (-10.81)	-0.0865*** (-10.78)	-0.0184* (-2.17)	-0.0165 (-1.95)	-0.0219** (-2.59)	-0.00919** (-3.06)	-0.00857** (-2.86)	-0.00787** (-2.60)	-0.0268*** (-4.80)	-0.0250*** (-4.47)	-0.0267*** (-4.79)
exercise	-0.141*** (-27.53)	-0.139*** (-27.16)	-0.135*** (-26.21)	-0.0861*** (-15.90)	-0.0835*** (-15.44)	-0.0721*** (-13.33)	-0.0162*** (-7.41)	-0.0147*** (-6.74)	-0.0110*** (-5.05)	-0.0522*** (-13.82)	-0.0495*** (-13.15)	-0.0399*** (-10.70)
chi2	1755.9***	1769.5***	1866.4***	1982.3***	2024.0***	2384.2***	520.6***	588.2***	777.8***	1039.8***	1095.3***	1439.0***
Chow test	58.13***	55.36***	51.16***	44.66***	38.36***	26.01***	32.20***	27.20***	21.80***	34.60***	30.25***	23.63***
N	40195	40195	40195	40195	40195	40195	40195	40195	40195	40195	40195	40195

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.23: Effect of Education on Health Behaviors by Age Group: 65-85 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0635*** (-9.41)	-0.0498*** (-7.08)	-0.0478*** (-6.58)	0.0565*** (9.47)	0.0492*** (7.86)	0.0379*** (5.80)	0.0620*** (12.86)	0.0516*** (10.35)	0.0442*** (8.58)
black	-0.196 (-1.31)	-0.194 (-1.28)	-0.224 (-1.45)	0.524*** (3.81)	0.518*** (3.74)	0.431** (3.06)	-0.231 (-1.94)	-0.224 (-1.91)	-0.172 (-1.42)
asian	-0.582** (-2.98)	-0.492* (-2.47)	-0.700** (-2.97)	0.651** (3.06)	0.606** (2.84)	0.781* (2.43)	0.696** (4.63)	0.634*** (4.20)	0.778*** (4.72)
hispanic	-0.705*** (-5.62)	-0.661*** (-5.20)	-0.655*** (-4.95)	1.172*** (9.16)	1.145*** (8.87)	0.892*** (6.58)	0.246** (2.79)	0.217* (2.47)	0.172 (1.90)
Bschl	0.0254* (1.99)	0.0207 (1.60)	0.0188 (1.42)	-0.0449*** (-3.80)	-0.0423*** (-3.54)	-0.0377** (-3.13)	-0.00216 (-0.22)	0.000741 (0.08)	-0.000946 (-0.09)
Aschl	0.0155 (1.01)	0.00810 (0.51)	0.0156 (0.92)	0.00420 (0.24)	0.00808 (0.46)	0.0110 (0.46)	-0.0472*** (-3.98)	-0.0422*** (-3.54)	-0.0490*** (-3.96)
Hschl	0.0325** (2.60)	0.0253* (2.00)	0.0247 (1.92)	-0.0541*** (-4.25)	-0.0501*** (-3.90)	-0.0415** (-3.09)	-0.0275** (-3.28)	-0.0225** (-2.69)	-0.0178* (-2.10)
female	-0.198*** (-5.79)	-0.222*** (-6.44)	-0.309*** (-8.48)	0.295*** (9.64)	0.308*** (10.00)	0.347*** (10.51)	-0.206*** (-9.12)	-0.189*** (-8.34)	-0.172*** (-7.24)
_Iповcat_4		-0.156*** (-4.52)	-0.101** (-2.91)		0.0590 (1.80)	-0.00133 (-0.04)		0.144*** (5.80)	0.108*** (4.25)
_Iповcat_5		-0.290*** (-6.92)	-0.199*** (-4.68)		0.151*** (3.96)	0.0428 (1.06)		0.216*** (7.78)	0.159*** (5.49)
midwest			0.0301 (0.53)			-0.0119 (-0.25)			0.0656 (1.77)
south			0.00448 (0.09)			0.242*** (5.40)			0.0373 (1.12)
west			-0.00783 (-0.13)			0.361*** (6.62)			0.123** (3.28)
urban			0.0380 (0.90)			0.230*** (6.40)			0.0311 (1.12)
married			-0.309*** (-8.15)			0.147*** (4.24)			0.00368 (0.15)
coglimt			0.0610 (1.24)			-0.0889 (-1.94)			-0.642*** (-17.44)
risk_attitude			0.0154 (0.42)			-0.185*** (-5.61)			0.155*** (5.88)
private			-0.0231 (-0.11)			-0.155 (-0.62)			-0.109 (-0.70)
public			0.0168 (0.08)			-0.218 (-0.88)			-0.217 (-1.39)
_cons	-0.00120 (-0.01)	0.0127 (0.13)	0.665* (2.22)	0.251** (2.74)	0.252** (2.73)	-0.756* (-2.21)	-0.482*** (-6.53)	-0.502*** (-6.80)	-0.725** (-3.29)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Idatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	327.0***	357.1***	434.1***	336.7***	350.7***	599.4***	793.5***	859.8***	1214.4***
Chow test	8.58*	5.23	4.69	23.35***	18.08***	18.33***	28.91***	25.41***	17.50***
N	18792	18792	18792	18792	18792	18792	18792	18792	18792

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.24: Effect of Education on Health Behaviors by Age Group: 65-85 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrschl	-0.0110 ^{***} (-9.41)	-0.00858 ^{***} (-7.08)	-0.00814 ^{***} (-6.58)	0.0106 ^{***} (9.47)	0.00921 ^{***} (7.86)	0.00687 ^{***} (5.80)	0.0235 ^{***} (13.12)	0.0195 ^{***} (10.48)	0.0164 ^{***} (8.66)
Bschl	0.00440 [*] (1.99)	0.00357 (1.60)	0.00320 (1.42)	-0.00841 ^{***} (-3.79)	-0.00792 ^{***} (-3.53)	-0.00684 ^{**} (-3.13)	-0.000821 (-0.22)	0.000280 (0.08)	-0.000350 (-0.09)
Aschl	0.00269 (1.01)	0.00139 (0.51)	0.00266 (0.92)	0.000787 (0.24)	0.00151 (0.46)	0.00199 (0.46)	-0.0179 ^{***} (-3.99)	-0.0160 ^{***} (-3.55)	-0.0181 ^{***} (-3.97)
Hschl	0.00563 ^{**} (2.60)	0.00436 [*] (2.00)	0.00420 (1.92)	-0.0101 ^{***} (-4.25)	-0.00938 ^{***} (-3.90)	-0.00752 ^{**} (-3.09)	-0.0105 ^{**} (-3.29)	-0.00853 ^{**} (-2.69)	-0.00660 [*] (-2.10)
chi2	327.0 ^{***}	357.1 ^{***}	434.1 ^{***}	336.7 ^{***}	350.7 ^{***}	599.4 ^{***}	793.5 ^{***}	859.8 ^{***}	1214.4 ^{***}
Chow test	8.58 [*]	5.23	4.69	23.35 ^{***}	18.08 ^{***}	18.33 ^{***}	28.91 ^{***}	25.41 ^{***}	17.50 ^{***}
N	18792	18792	18792	18792	18792	18792	18792	18792	18792

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.26: Marginal Effect of Education on Health Outcomes by Age Group: 65-85 years

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrschl	-0.0111*** (-6.57)	-0.0102*** (-5.81)	-0.0112*** (-6.28)	-0.0106*** (-5.49)	-0.00829*** (-4.16)	-0.00888*** (-4.41)	-0.00339** (-2.80)	-0.00175 (-1.39)	-0.00157 (-1.22)	-0.00948*** (-5.59)	-0.00782*** (-4.45)	-0.00755*** (-4.22)
Bschl	0.0109** (3.28)	0.0105** (3.14)	0.00926** (2.78)	0.00881* (1.98)	0.00779 (1.77)	0.00708 (1.61)	0.00427 (1.75)	0.00374 (1.51)	0.00366 (1.48)	0.00999** (3.18)	0.00940** (2.97)	0.00944** (2.98)
Aschl	0.00119 (0.29)	0.000739 (0.18)	0.00629 (1.43)	0.0102* (2.06)	0.00913 (1.84)	0.00955 (1.85)	0.00302 (0.84)	0.00224 (0.61)	0.00322 (0.83)	0.00117 (0.29)	0.000349 (0.09)	0.00148 (0.35)
Hschl	0.00849** (2.90)	0.00790** (2.68)	0.00803** (2.74)	0.00958** (2.81)	0.00818* (2.40)	0.00736* (2.16)	0.00509* (2.14)	0.00424 (1.77)	0.00394 (1.64)	0.00670* (2.35)	0.00579* (2.02)	0.00539 (1.88)
smoke	-0.150*** (-11.05)	-0.151*** (-11.10)	-0.155*** (-11.43)	-0.0769*** (-5.38)	-0.0798*** (-5.59)	-0.0815*** (-5.73)	0.0242** (2.65)	0.0213* (2.34)	0.0198* (2.17)	-0.0602*** (-4.57)	-0.0626*** (-4.74)	-0.0651*** (-4.93)
seatbelt	-0.0596*** (-5.29)	-0.0590*** (-5.23)	-0.0553*** (-4.91)	0.00568 (0.44)	0.00732 (0.57)	0.00242 (0.19)	-0.00851 (-1.04)	-0.00746 (-0.91)	-0.00621 (-0.75)	-0.0203 (-1.83)	-0.0192 (-1.73)	-0.0206 (-1.84)
exercise	-0.140*** (-19.88)	-0.140*** (-19.74)	-0.140*** (-19.76)	-0.0874*** (-10.92)	-0.0854*** (-10.68)	-0.0792*** (-9.85)	-0.0432*** (-7.94)	-0.0416*** (-7.64)	-0.0376*** (-6.89)	-0.0975*** (-14.00)	-0.0960*** (-13.73)	-0.0879*** (-12.52)
chi2	1003.3***	1008.3***	1082.1***	465.0***	481.9***	583.0***	320.8***	349.5***	391.2***	533.9***	545.4***	623.5***
Chow test	15.79***	14.20**	11.97**	11.39**	8.63*	7.55	6.28	4.39	4.09	12.79**	10.98*	10.20*
N	18792	18792	18792	18792	18792	18792	18792	18792	18792	18792	18792	18792

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.27: Effect of Education on Health Behaviors by Region: Northeast

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.142*** (-15.65)	-0.117*** (-12.64)	-0.111*** (-11.64)	0.0801*** (10.58)	0.0710*** (8.96)	0.0623*** (7.65)	0.0430*** (6.88)	0.0318*** (4.90)	0.0277*** (4.16)
black	-0.518* (-2.32)	-0.650** (-2.92)	-0.744** (-3.27)	0.496* (2.50)	0.554** (2.78)	0.553** (2.74)	-0.186 (-1.11)	-0.107 (-0.64)	-0.0117 (-0.07)
asian	-1.214*** (-4.06)	-1.161*** (-3.79)	-1.335*** (-4.13)	0.715** (2.69)	0.703** (2.63)	1.034*** (3.69)	-0.344 (-1.31)	-0.348 (-1.33)	-0.175 (-0.62)
hispanic	-1.777*** (-10.40)	-1.775*** (-10.31)	-1.747*** (-9.87)	1.139*** (6.91)	1.138*** (6.81)	1.047*** (6.17)	-0.380** (-2.79)	-0.377** (-2.79)	-0.327* (-2.38)
Bschl	0.0365* (2.12)	0.0399* (2.31)	0.0408* (2.33)	-0.0299 (-1.95)	-0.0319* (-2.07)	-0.0303 (-1.95)	0.00180 (0.14)	-0.00127 (-0.10)	-0.00596 (-0.46)
Aschl	0.0565** (2.70)	0.0517* (2.41)	0.0589** (2.71)	-0.0199 (-1.06)	-0.0185 (-0.99)	-0.0342 (-1.78)	0.00781 (0.43)	0.00869 (0.48)	0.000767 (0.04)
Hschl	0.112*** (8.28)	0.103*** (7.50)	0.100*** (7.14)	-0.0494*** (-3.65)	-0.0464*** (-3.35)	-0.0415** (-2.95)	0.00894 (0.82)	0.0121 (1.12)	0.0105 (0.96)
female	-0.149*** (-4.50)	-0.183*** (-5.48)	-0.191*** (-5.51)	0.266*** (8.36)	0.279*** (8.76)	0.283*** (8.66)	-0.166*** (-6.63)	-0.154*** (-6.11)	-0.134*** (-5.20)
_Ipoocat_4		-0.290*** (-7.84)	-0.166*** (-4.31)		0.144*** (3.92)	0.0516 (1.34)		0.175*** (5.80)	0.117*** (3.66)
_Ipoocat_5		-0.494*** (-11.94)	-0.324*** (-7.40)		0.181*** (4.51)	0.0573 (1.33)		0.226*** (7.10)	0.172*** (4.98)
urban			-0.0462 (-0.85)			0.167*** (3.30)			-0.220*** (-5.28)
married			-0.332*** (-9.29)			0.178*** (5.14)			-0.0864** (-3.18)
coglimit			0.239*** (3.50)			-0.0860 (-1.29)			-0.454*** (-7.80)
risk_attitude			0.196*** (5.83)			-0.162*** (-4.78)			0.135*** (4.86)
private			-0.107* (-2.04)			0.123* (2.22)			-0.0111 (-0.25)
public			0.0300 (0.51)			-0.00904 (-0.15)			-0.205*** (-4.17)
_cons	1.597*** (9.16)	1.520*** (8.78)	1.986*** (8.26)	-0.768*** (-4.67)	-0.757*** (-4.57)	-1.447*** (-6.31)	-0.199 (-1.36)	-0.186 (-1.26)	0.0335 (0.17)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Idatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	519.6***	676.0***	826.4***	373.7***	399.4***	541.7***	472.4***	528.8***	710.4***
Chow test	69.30***	56.57***	51.89***	0.76	1.54	1.50	14.42**	12.84**	11.19*
N	15036	15036	15036	15036	15036	15036	15036	15036	15036

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.28: Marginal Effect of Education on Health Behaviors by Region: Northeast

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0354 ^{***} (-16.17)	-0.0287 ^{***} (-12.90)	-0.0265 ^{***} (-11.82)	0.0183 ^{***} (10.66)	0.0162 ^{***} (9.01)	0.0140 ^{***} (7.68)	0.0165 ^{***} (6.94)	0.0122 ^{***} (4.92)	0.0104 ^{***} (4.18)
Bschl	0.00912 [*] (2.12)	0.00980 [*] (2.32)	0.00979 [*] (2.33)	-0.00686 (-1.95)	-0.00729 [*] (-2.07)	-0.00681 (-1.95)	0.000690 (0.14)	-0.000486 (-0.10)	-0.00225 (-0.46)
Aschl	0.0141 ^{**} (2.70)	0.0127 [*] (2.41)	0.0141 ^{**} (2.71)	-0.00455 (-1.06)	-0.00423 (-0.99)	-0.00767 (-1.78)	0.00299 (0.43)	0.00332 (0.48)	0.000289 (0.04)
Hschl	0.0279 ^{***} (8.36)	0.0254 ^{***} (7.56)	0.0240 ^{***} (7.19)	-0.0113 ^{***} (-3.65)	-0.0106 ^{***} (-3.35)	-0.00931 ^{**} (-2.96)	0.00342 (0.82)	0.00464 (1.12)	0.00397 (0.96)
chi2	519.6 ^{***}	676.0 ^{***}	826.4 ^{***}	373.7 ^{***}	399.4 ^{***}	541.7 ^{***}	472.4 ^{***}	528.8 ^{***}	710.4 ^{***}
Chow test	69.30 ^{***}	56.57 ^{***}	51.89 ^{***}	0.76	1.54	1.50	14.42 ^{**}	12.84 ^{**}	11.19 [*]
N	15036	15036	15036	15036	15036	15036	15036	15036	15036

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.29: Effect of Education on Health Outcomes by Region: Northeast

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrsschl	-0.0681*** (-8.98)	-0.0607*** (-7.76)	-0.0620*** (-7.84)	-0.0368*** (-4.70)	-0.0313*** (-3.88)	-0.0308*** (-3.75)	-0.0318*** (-2.48)	-0.0207*** (-1.52)	-0.0172*** (-1.23)	-0.0688*** (-6.81)	-0.0611*** (-5.88)	-0.0579*** (-5.45)
black	-0.569*** (-2.92)	-0.574*** (-2.93)	-0.582*** (-2.94)	0.395 (1.82)	0.382 (1.76)	0.356 (1.61)	-0.320 (-0.98)	-0.373 (-1.13)	-0.384 (-1.17)	0.0626 (0.26)	0.0216 (0.09)	0.0188 (0.08)
asian	-1.043*** (-3.86)	-1.029*** (-3.81)	-1.651*** (-5.21)	-0.0347 (-0.12)	-0.0188 (-0.06)	-0.0691 (-0.22)	-0.388 (-0.94)	-0.363 (-0.86)	-0.723 (-1.31)	-0.0651 (-0.20)	-0.0503 (-0.16)	-0.164 (-0.48)
hispanic	-0.575*** (-3.80)	-0.548*** (-3.61)	-0.577*** (-3.74)	-0.156 (-0.98)	-0.142 (-0.90)	-0.161 (-0.99)	-0.408 (-1.39)	-0.420 (-1.41)	-0.403 (-1.34)	-0.343 (-1.17)	-0.349 (-1.19)	-0.335 (-1.09)
Bschl	0.0660*** (4.44)	0.0650*** (4.35)	0.0646*** (4.29)	0.00187 (0.11)	0.00166 (0.10)	0.000964 (0.06)	0.0306 (1.19)	0.0302 (1.15)	0.0309 (1.19)	0.0276 (1.43)	0.0282 (1.46)	0.0294 (1.53)
Aschl	0.0322 (1.71)	0.0313 (1.66)	0.0604** (2.86)	-0.000626 (-0.03)	-0.00187 (-0.09)	0.000795 (0.04)	0.0341 (1.15)	0.0305 (1.01)	0.0469 (1.29)	0.0193 (0.86)	0.0174 (0.78)	0.0222 (0.96)
Hschl	0.0413*** (3.41)	0.0374** (3.07)	0.0390** (3.18)	0.0163 (1.26)	0.0138 (1.06)	0.0154 (1.18)	0.0242 (0.94)	0.0195 (0.74)	0.0202 (0.75)	0.0466** (2.91)	0.0438** (2.70)	0.0447** (2.74)
smoke	-0.169*** (-4.56)	-0.182*** (-4.89)	-0.192*** (-5.08)	-0.0449 (-1.11)	-0.0553 (-1.36)	-0.0769 (-1.87)	0.253*** (3.57)	0.222** (3.08)	0.207** (2.78)	-0.0977 (-1.84)	-0.120* (-2.24)	-0.137* (-2.48)
seabelt	-0.313*** (-8.73)	-0.310*** (-8.65)	-0.313*** (-8.65)	-0.0447 (-1.13)	-0.0419 (-1.06)	-0.0430 (-1.13)	-0.165* (-2.42)	-0.157* (-2.28)	-0.142* (-2.02)	-0.120* (-2.42)	-0.111* (-2.25)	-0.112* (-2.21)
exercise	-0.333*** (-12.96)	-0.329*** (-12.79)	-0.330*** (-12.69)	-0.205*** (-7.55)	-0.201*** (-7.40)	-0.192*** (-6.98)	-0.237*** (-4.62)	-0.219*** (-4.26)	-0.201*** (-3.83)	-0.255*** (-7.19)	-0.246*** (-6.90)	-0.230*** (-6.34)
female	0.0758* (2.55)	0.0689* (2.31)	0.0502 (1.65)	-0.128*** (-4.02)	-0.134*** (-4.18)	-0.169*** (-5.15)	-0.410*** (-6.92)	-0.429*** (-7.23)	-0.431*** (-7.04)	-0.0670 (-1.62)	-0.0785 (-1.89)	-0.0931* (-2.17)
_lpoocat_4		0.00584 (0.17)	0.0411 (1.14)		-0.00986 (-0.27)	0.0549 (1.44)		-0.205** (-3.22)	-0.174** (-3.22)		-0.108* (-2.44)	-0.0464 (-1.00)
_lpoocat_5		-0.120** (-3.25)	-0.0666 (-1.67)		-0.0943* (-2.44)	-0.00865 (-0.21)		-0.285*** (-3.98)	-0.249*** (-3.37)		-0.182*** (-3.69)	-0.107* (-2.05)
urban			-0.0883 (-1.81)			-0.138** (-2.72)			-0.0719 (-0.84)			-0.183** (-2.85)
married			-0.0532 (-1.64)			-0.108** (-3.10)			0.0645 (0.99)			0.0337 (0.73)
coglimit			0.0682 (1.12)			0.178** (2.76)			0.219* (2.44)			0.259*** (3.62)
risk_attitude			-0.0675* (-2.16)			-0.0826* (-2.53)			0.0769 (1.29)			-0.0740 (-1.70)
private			0.0806 (1.61)			0.278*** (4.82)			0.396** (2.85)			0.300*** (3.34)
public			0.167** (3.01)			0.445*** (7.14)			0.521*** (3.58)			0.496*** (5.38)
_cons	0.392* (2.22)	0.331 (1.87)	1.341*** (5.72)	-1.329*** (-4.77)	-1.366*** (-4.87)	-1.361*** (-4.24)	-4.871*** (-26.13)	-4.839*** (-24.95)	-4.775*** (-13.54)	-4.388*** (-30.33)	-4.394*** (-29.84)	-4.408*** (-17.47)
_lage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_ldatayr*	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
chi2	689.1***	703.6***	744.1***	1732.6***	1743.4***	1865.5***	13030.8***		2610.8***	14043.1***	11735.0***	9364.8***
Chow test	24.63***	22.57***	25.38***	1.73	1.26	1.49	2.42	1.96	2.61	8.74*	7.74*	7.99*
N	15036	15036	15036	15036	15036	15036	13054	13054	13054	14794	14794	14794

f statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.30: Marginal Effect of Education on Health Outcomes by Region: Northeast

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrschl	-0.0217*** (-9.09)	-0.0193*** (-7.83)	-0.0196*** (-7.91)	-0.0108*** (-4.71)	-0.00921*** (-3.89)	-0.00892*** (-3.76)	-0.00247* (-2.47)	-0.00160 (-1.52)	-0.00131 (-1.23)	-0.0111*** (-6.84)	-0.00983*** (-5.88)	-0.00917*** (-5.46)
Bschl	0.0211*** (4.45)	0.0207*** (4.36)	0.0204*** (4.30)	0.000549 (0.11)	0.000487 (0.10)	0.000279 (0.06)	0.00237 (1.18)	0.00233 (1.15)	0.00236 (1.19)	0.00444 (1.43)	0.00454 (1.46)	0.00465 (1.53)
Aschl	0.0103 (1.71)	0.00997 (1.66)	0.0191** (2.86)	-0.000184 (-0.03)	-0.000550 (-0.09)	0.000230 (0.04)	0.00264 (1.15)	0.00235 (1.01)	0.00357 (1.29)	0.00311 (0.86)	0.00281 (0.78)	0.00352 (0.96)
Hschl	0.0132*** (3.41)	0.0119** (3.08)	0.0123** (3.19)	0.00480 (1.26)	0.00406 (1.06)	0.00446 (1.18)	0.00187 (0.94)	0.00150 (0.73)	0.00154 (0.75)	0.00751** (2.91)	0.00704** (2.70)	0.00708** (2.74)
smoke	-0.0540*** (-4.58)	-0.0580*** (-4.90)	-0.0607*** (-5.10)	-0.0132 (-1.11)	-0.0163 (-1.37)	-0.0223 (-1.87)	0.0196*** (3.51)	0.0171** (3.04)	0.0158** (2.76)	-0.0158 (-1.84)	-0.0193* (-2.24)	-0.0216* (-2.49)
seatbelt	-0.0998*** (-8.81)	-0.0988*** (-8.73)	-0.0990*** (-8.74)	-0.0132 (-1.13)	-0.0123 (-1.06)	-0.0125 (-1.08)	-0.0128* (-2.40)	-0.0121* (-2.27)	-0.0108* (-2.02)	-0.0194* (-2.43)	-0.0179* (-2.25)	-0.0177* (-2.22)
exercise	-0.106*** (-13.21)	-0.105*** (-13.02)	-0.104*** (-12.93)	-0.0604*** (-7.61)	-0.0592*** (-7.45)	-0.0555*** (-7.03)	-0.0184*** (-4.57)	-0.0169*** (-4.23)	-0.0153*** (-3.84)	-0.0412*** (-7.19)	-0.0396*** (-6.88)	-0.0364*** (-6.32)
chi2	689.1***	703.6***	744.1***	1732.6***	1743.4***	1865.5***	13030.8***	.	2610.8***	14043.1***	11735.0***	9364.8***
Chow test	24.63***	22.57***	25.38***	1.73	1.26	1.49	2.42	1.96	2.61	8.74*	7.74*	7.99*
N	15036	15036	15036	15036	15036	15036	13054	13054	13054	14794	14794	14794

t-statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.31: Effect of Education on Health Behaviors by Region: Midwest

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.177*** (-22.58)	-0.149*** (-18.77)	-0.140*** (-17.03)	0.0960*** (14.83)	0.0863*** (12.73)	0.0735*** (10.62)	0.0501*** (9.59)	0.0407*** (7.47)	0.0370*** (6.69)
black	-0.753** (-3.28)	-0.846*** (-3.79)	-0.930*** (-4.15)	1.141*** (6.24)	1.163*** (6.35)	1.016*** (5.50)	-0.0666 (-0.43)	-0.00736 (-0.05)	0.120 (0.75)
asian	-1.282*** (-3.85)	-1.320*** (-3.99)	-1.816*** (-4.63)	-0.528 (-1.40)	-0.534 (-1.43)	-0.0730 (-0.18)	0.281 (0.98)	0.295 (1.03)	0.377 (1.22)
hispanic	-2.476*** (-13.47)	-2.357*** (-12.63)	-2.275*** (-11.84)	1.602*** (9.98)	1.561*** (9.65)	1.408*** (8.54)	-0.0969 (-0.71)	-0.134 (-0.98)	-0.217 (-1.56)
Bschl	0.0621*** (3.51)	0.0613*** (3.56)	0.0606*** (3.52)	-0.0873*** (-6.21)	-0.0867*** (-6.16)	-0.0805*** (-5.70)	-0.0133 (-1.11)	-0.0151 (-1.27)	-0.0241* (-2.00)
Aschl	0.0672** (2.80)	0.0672** (2.79)	0.0892** (3.28)	0.0604* (2.25)	0.0618* (2.32)	0.0474 (1.72)	-0.0304 (-1.52)	-0.0307 (-1.54)	-0.0358 (-1.73)
Hschl	0.150*** (9.70)	0.135*** (8.56)	0.127*** (7.86)	-0.0885*** (-6.44)	-0.0837*** (-6.03)	-0.0791*** (-5.61)	-0.00157 (-0.14)	0.00294 (0.25)	0.00693 (0.59)
female	-0.154*** (-5.68)	-0.195*** (-7.10)	-0.192*** (-6.81)	0.400*** (15.55)	0.413*** (15.99)	0.395*** (14.83)	-0.141*** (-6.69)	-0.128*** (-6.07)	-0.101*** (-4.65)
_Ipoocat_4		-0.255*** (-8.34)	-0.102** (-3.18)		0.0519 (1.72)	-0.00714 (-0.22)		0.136*** (5.36)	0.0898*** (3.34)
_Ipoocat_5		-0.502*** (-14.51)	-0.293*** (-7.84)		0.163*** (4.92)	0.0642 (1.77)		0.172*** (6.27)	0.131*** (4.37)
urban			0.0120 (0.35)			0.339*** (10.98)			-0.0236 (-0.91)
married			-0.330*** (-11.02)			0.119*** (4.16)			-0.0749** (-3.20)
coglimt			0.207*** (3.49)			0.0238 (0.43)			-0.473*** (-9.81)
risk_attitude			0.156*** (5.77)			-0.237*** (-8.94)			0.153*** (6.54)
private			-0.284*** (-6.84)			0.104* (2.55)			-0.0224 (-0.62)
public			-0.113* (-2.19)			0.0212 (0.43)			-0.218*** (-5.05)
_cons	1.989*** (13.92)	1.849*** (12.99)	2.472*** (11.69)	-1.053*** (-8.29)	-0.989*** (-7.70)	-2.008*** (-9.68)	-0.275* (-2.43)	-0.245* (-2.15)	-0.177 (-1.05)
_lage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_ldatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	872.3***	1082.2***	1297.2***	668.8***	708.4***	1077.5***	472.7***	514.0***	790.6***
Chow test	97.85***	78.45***	69.49***	3.13	3.87	7.32	79.72***	75.42***	61.88***
N	21258	21258	21258	21258	21258	21258	21258	21258	21258

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.32: Marginal Effect of Education on Health Behaviors by Region: Midwest

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0484 ^{***} (-24.23)	-0.0402 ^{***} (-19.71)	-0.0368 ^{***} (-17.72)	0.0255 ^{***} (15.14)	0.0229 ^{***} (12.94)	0.0189 ^{***} (10.72)	0.0192 ^{***} (9.68)	0.0156 ^{***} (7.51)	0.0140 ^{***} (6.72)
Bschl	0.0170 ^{***} (3.51)	0.0165 ^{***} (3.56)	0.0159 ^{***} (3.53)	-0.0232 ^{***} (-6.22)	-0.0230 ^{***} (-6.17)	-0.0207 ^{***} (-5.71)	-0.00509 (-1.11)	-0.00576 (-1.27)	-0.00912 [*] (-2.00)
Aschl	0.0184 ^{**} (2.80)	0.0181 ^{**} (2.79)	0.0234 ^{**} (3.29)	0.0160 [*] (2.25)	0.0164 [*] (2.32)	0.0122 (1.72)	-0.0116 (-1.52)	-0.0118 (-1.54)	-0.0135 (-1.73)
Hschl	0.0410 ^{***} (9.84)	0.0364 ^{***} (8.65)	0.0335 ^{***} (7.93)	-0.0235 ^{***} (-6.45)	-0.0222 ^{***} (-6.04)	-0.0203 ^{***} (-5.61)	-0.000602 (-0.14)	0.00112 (0.25)	0.00262 (0.59)
chi2	872.3 ^{***}	1082.2 ^{***}	1297.2 ^{***}	668.8 ^{***}	708.4 ^{***}	1077.5 ^{***}	472.7 ^{***}	514.0 ^{***}	790.6 ^{***}
Chow test	97.85 ^{***}	78.45 ^{***}	69.49 ^{***}	3.13	3.87	7.32	79.72 ^{***}	75.42 ^{***}	61.88 ^{***}
N	21258	21258	21258	21258	21258	21258	21258	21258	21258

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.33: Effect of Education on Health Outcomes by Region: Midwest

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
yrsschl	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
black	-0.0649 (-10.17)	-0.0564 (-8.59)	-0.0580 (-8.70)	-0.0459 (-6.88)	-0.0336 (-4.88)	-0.0347 (-4.95)	-0.0485 (-4.57)	-0.0340 (-3.09)	-0.0330 (-2.96)	-0.0543 (-6.17)	-0.0452 (-4.94)	-0.0432 (-4.61)
asian	-0.469** (-2.61)	-0.509** (-2.83)	-0.521** (-2.86)	0.212 (1.08)	0.151 (0.77)	0.0781 (0.39)	-0.659* (-2.06)	-0.743* (-2.28)	-0.878** (-2.70)	-0.154 (-0.64)	-0.212 (-0.86)	-0.282 (-1.13)
hispanic	-0.619* (-1.97)	-0.628* (-2.01)	-1.710*** (-4.26)	-0.702* (-2.06)	-0.734* (-2.13)	-1.142** (-2.80)	-1.329** (-1.84)	-1.400** (-1.79)	-2.528** (-3.07)	0.137 (0.34)	0.119 (0.29)	0.0970 (0.22)
Bschl	-0.732 (-4.78)	-0.707 (-4.61)	-0.683 (-4.43)	-0.735*** (-4.47)	-0.699*** (-4.21)	-0.663** (-3.94)	-0.711* (-2.22)	-0.667* (-2.06)	-0.684* (-2.08)	-0.162 (-0.78)	-0.134 (-0.65)	-0.0644 (-0.30)
Aschl	0.0608** (4.43)	0.0616** (4.47)	0.0626** (4.50)	0.0164 (1.09)	0.0177 (1.18)	0.0211 (1.39)	0.0584* (2.31)	0.0602* (2.33)	0.0672* (2.62)	0.0406* (2.16)	0.0421* (2.20)	0.0457* (2.37)
Hschl	0.00889 (0.41)	0.00866 (0.40)	0.0562 (2.25)	0.0393 (1.61)	0.0404 (1.64)	0.0577* (2.09)	0.0684 (1.24)	0.0714 (1.20)	0.126 (0.52)	0.00537 (0.18)	0.00567 (0.19)	0.00649 (0.21)
smoke	0.0597*** (4.67)	0.0561*** (4.36)	0.0539*** (4.19)	0.0492*** (3.60)	0.0440** (3.17)	0.0396** (2.83)	0.0565* (2.02)	0.0507 (1.78)	0.0502 (1.73)	0.0317 (1.82)	0.0276 (1.56)	0.0218 (1.22)
seatbelt	-0.255*** (-8.56)	-0.273*** (-9.07)	-0.279*** (-9.15)	-0.0372 (-1.17)	-0.0647* (-2.01)	-0.0685* (-2.09)	0.283*** (5.42)	0.252*** (4.79)	0.239*** (4.47)	-0.0658 (-1.50)	-0.0866 (-1.95)	-0.0952* (-2.11)
exercise	-0.198*** (-7.06)	-0.193*** (-6.89)	-0.201*** (-7.08)	-0.00406 (-0.13)	0.00310 (0.10)	-0.0265 (-0.82)	0.0109 (0.21)	0.0168 (0.32)	0.00204 (0.04)	-0.0307 (-0.75)	-0.0253 (-0.61)	-0.0502 (-1.20)
female	-0.420*** (-19.64)	-0.415*** (-19.40)	-0.420*** (-19.40)	-0.228*** (-9.99)	-0.220*** (-9.63)	-0.212*** (-9.17)	-0.215*** (-5.40)	-0.200*** (-5.04)	-0.173*** (-4.32)	-0.309*** (-10.03)	-0.299*** (-9.71)	-0.282*** (-9.08)
_lpovent_4	0.0705** (2.84)	0.0577* (2.32)	0.0401 (1.58)	-0.0745** (-2.79)	-0.0929*** (-3.46)	-0.124*** (-4.49)	-0.294*** (-6.35)	-0.325*** (-6.97)	-0.337*** (-7.09)	-0.0932** (-2.59)	-0.110** (-3.05)	-0.125*** (-3.39)
_lpovent_5	-0.0755** (-2.65)	-0.0755** (-2.65)	-0.0422 (-1.41)	-0.110** (-3.59)	-0.110** (-3.59)	-0.0534 (-1.66)	-0.189*** (-3.87)	-0.189*** (-3.87)	-0.132** (-2.59)	-0.133*** (-3.32)	-0.133*** (-3.32)	-0.0740 (-1.76)
married	-0.162*** (-5.16)	-0.162*** (-5.16)	-0.115*** (-3.41)	-0.115*** (-3.41)	-0.240*** (-7.21)	-0.161*** (-4.49)	-0.240*** (-7.21)	-0.296*** (-5.43)	-0.227*** (-3.82)	-0.194*** (-4.30)	-0.194*** (-4.30)	-0.113* (-2.35)
risk_attitude												
private												
public												
_cons	0.437** (3.21)	0.397** (2.91)	1.556*** (7.17)	-0.591*** (-3.80)	-0.652*** (-4.18)	-0.225 (-1.02)	-4.716*** (-31.03)	-4.781*** (-31.24)	-4.175*** (-11.34)	-1.813*** (-4.95)	-1.840*** (-5.02)	-1.884*** (-4.56)
_ltaget*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_ltagetyr*	No	No	No	No	No	No	No	No	No	No	No	No
chi2	944.3***	966.5***	1015.8***	2333.2***	2381.2***	2527.7***	10718.0	18364.0***	14068.1***	765.4***	791.4***	897.4***
Chow test	34.818***	32.90***	32.77***	14.38***	11.82***	11.58***	9.08*	8.39*	10.94*	6.66	6.19	6.25
N	21258	21258	21258	21258	21258	21258	20417	20417	20417	21258	21258	21258

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.34: Marginal Effect of Education on Health Outcomes by Region: Midwest

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrschl	-0.0220*** (-10.30)	-0.0191*** (-8.67)	-0.0194*** (-8.78)	-0.0136*** (-6.92)	-0.00995*** (-4.90)	-0.0101*** (-4.97)	-0.00401*** (-4.51)	-0.00279** (-3.07)	-0.00268** (-2.94)	-0.00801*** (-6.15)	-0.00665*** (-4.93)	-0.00627*** (-4.60)
Bschl	0.0206*** (4.44)	0.0208*** (4.48)	0.0210*** (4.51)	0.00489 (1.09)	0.00525 (1.18)	0.00614 (1.39)	0.00485* (2.31)	0.00494* (2.33)	0.00545*** (2.61)	0.00599* (2.16)	0.00620* (2.20)	0.00664* (2.38)
Aschl	0.00301 (0.41)	0.00293 (0.40)	0.0188* (2.25)	0.0117 (1.61)	0.0120 (1.64)	0.0168* (2.10)	0.00565 (1.24)	0.00586 (1.20)	0.0102 (1.81)	0.000791 (0.18)	0.000834 (0.19)	0.000942 (0.21)
Hschl	0.0202*** (4.68)	0.0190*** (4.37)	0.0180*** (4.20)	0.0146*** (3.61)	0.0130** (3.18)	0.0115** (2.83)	0.00467* (2.02)	0.00416 (1.78)	0.00407 (1.73)	0.00467 (1.82)	0.00405 (1.56)	0.00317 (1.22)
smoke	-0.0863*** (-8.63)	-0.0922*** (-9.16)	-0.0936*** (-9.24)	-0.0111 (-1.17)	-0.0192* (-2.01)	-0.0200* (-2.09)	0.0233*** (5.33)	0.0207*** (4.73)	0.0194*** (4.42)	-0.00970 (-1.50)	-0.0127 (-1.95)	-0.0138* (-2.11)
seatbelt	-0.0670*** (-7.09)	-0.0654*** (-6.92)	-0.0674*** (-7.11)	-0.00121 (-0.13)	0.000917 (0.10)	-0.00773 (-0.83)	0.000900 (0.21)	0.00138 (0.32)	0.000165 (0.04)	-0.00453 (-0.74)	-0.00372 (-0.61)	-0.00729 (-1.19)
exercise	-0.142*** (-20.29)	-0.140*** (-20.02)	-0.141*** (-20.04)	-0.0678*** (-10.07)	-0.0653*** (-9.71)	-0.0619*** (-9.23)	-0.0176*** (-5.34)	-0.0164*** (-5.01)	-0.0140*** (-4.30)	-0.0455*** (-9.95)	-0.0440*** (-9.65)	-0.0409*** (-9.03)
chi2	944.3***	966.5***	1015.8***	2333.2***	2381.2***	2527.7***	10718.0	18364.0***	14068.1***	765.4***	791.4***	897.4***
Chow test	34.81***	32.90***	32.77***	14.38***	11.82**	11.58**	9.08*	8.39*	10.94*	6.66	6.19	6.25
N	21258	21258	21258	21258	21258	21258	20417	20417	20417	21258	21258	21258

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.35: Effect of Education on Health Behaviors by Region: South

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.134*** (-25.20)	-0.105*** (-19.24)	-0.0964*** (-17.33)	0.0715*** (15.16)	0.0601*** (12.09)	0.0457*** (8.90)	0.0480*** (12.34)	0.0366*** (9.00)	0.0301*** (7.24)
black	-0.662*** (-6.09)	-0.702*** (-6.49)	-0.775*** (-7.06)	0.352*** (3.48)	0.349*** (3.42)	0.345*** (3.36)	-0.281** (-3.26)	-0.252** (-2.95)	-0.214* (-2.48)
asian	-0.995*** (-5.41)	-0.855*** (-4.70)	-1.131*** (-5.27)	0.459** (2.80)	0.410* (2.50)	1.075*** (4.69)	0.204 (1.27)	0.155 (0.97)	0.0622 (0.33)
hispanic	-1.995*** (-20.64)	-1.900*** (-19.55)	-1.865*** (-18.86)	1.516*** (15.43)	1.468*** (14.73)	1.269*** (12.43)	0.00130 (0.02)	-0.0321 (-0.46)	-0.100 (-1.41)
Bschl	0.0426*** (5.03)	0.0394*** (4.64)	0.0412*** (4.80)	-0.0258** (-3.25)	-0.0234** (-2.91)	-0.0249** (-3.09)	0.0132* (1.98)	0.0132* (2.00)	0.0105 (1.57)
Aschl	0.0497*** (3.67)	0.0384** (2.85)	0.0461** (3.23)	-0.0135 (-1.10)	-0.00966 (-0.78)	-0.0318* (-2.07)	-0.0241* (-2.05)	-0.0203 (-1.74)	-0.0162 (-1.27)
Hschl	0.120*** (15.14)	0.106*** (13.16)	0.102*** (12.55)	-0.0774*** (-9.46)	-0.0714*** (-8.55)	-0.0614*** (-7.24)	-0.0130* (-2.28)	-0.00808 (-1.42)	-0.00342 (-0.59)
female	-0.230*** (-11.66)	-0.272*** (-13.63)	-0.286*** (-13.99)	0.311*** (15.63)	0.326*** (16.30)	0.333*** (16.16)	-0.211*** (-13.98)	-0.197*** (-12.99)	-0.182*** (-11.79)
_Ipoocat_4		-0.271*** (-12.99)	-0.165*** (-7.58)		0.0501* (2.29)	-0.0153 (-0.66)		0.137*** (7.99)	0.0871*** (4.86)
_Ipoocat_5		-0.501*** (-19.28)	-0.341*** (-12.30)		0.186*** (7.11)	0.0841** (2.95)		0.192*** (9.72)	0.134*** (6.33)
urban			-0.00531 (-0.22)			0.300*** (13.12)			-0.00508 (-0.28)
married			-0.255*** (-11.92)			0.115*** (5.29)			-0.0388* (-2.37)
coglimt			0.0857* (2.08)			0.0257 (0.60)			-0.515*** (-15.16)
risk_attitude			0.129*** (6.69)			-0.139*** (-6.81)			0.113*** (6.99)
private			-0.221*** (-8.41)			0.0509 (1.80)			0.0495* (2.31)
public			-0.0452 (-1.33)			-0.0418 (-1.20)			-0.142*** (-5.30)
_cons	1.387*** (13.92)	1.232*** (12.35)	1.646*** (11.67)	-0.422*** (-4.33)	-0.343*** (-3.49)	-1.132*** (-7.47)	-0.221** (-2.64)	-0.169* (-2.01)	0.00653 (0.06)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Idatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1426.8***	1804.5***	2096.7***	976.5***	1021.8***	1514.2***	981.0***	1099.6***	1533.7***
Chow test	229.83***	173.29***	157.52***	19.33***	13.44**	6.30	90.45***	74.44***	53.41
N	40226	40226	40226	40226	40226	40226	40226	40226	40226

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.36: Marginal Effect of Education on Health Behaviors by Region: South

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0360*** (-26.28)	-0.0277*** (-19.73)	-0.0251*** (-17.68)	0.0149*** (15.20)	0.0125*** (12.12)	0.00927*** (8.91)	0.0186*** (12.44)	0.0142*** (9.04)	0.0115*** (7.26)
Bschl	0.0115*** (5.04)	0.0104*** (4.65)	0.0107*** (4.81)	-0.00539** (-3.25)	-0.00486** (-2.91)	-0.00505** (-3.09)	0.00512* (1.98)	0.00512* (2.00)	0.00401 (1.57)
Aschl	0.0134*** (3.68)	0.0102** (2.85)	0.0120** (3.23)	-0.00283 (-1.10)	-0.00201 (-0.78)	-0.00645* (-2.07)	-0.00934* (-2.05)	-0.00785 (-1.74)	-0.00621 (-1.27)
Hschl	0.0322*** (15.39)	0.0281*** (13.32)	0.0265*** (12.68)	-0.0161*** (-9.46)	-0.0149*** (-8.56)	-0.0125*** (-7.24)	-0.00502* (-2.28)	-0.00312 (-1.42)	-0.00131 (-0.59)
chi2	1426.8***	1804.5***	2096.7***	976.5***	1021.8***	1514.2***	981.0***	1099.6***	1533.7***
Chow test	229.83***	173.29***	157.52***	19.33***	13.44**	6.30	90.45***	74.44***	53.41
N	40226	40226	40226	40226	40226	40226	40226	40226	40226

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.3.7: Effect of Education on Health Outcomes by Region: South

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
yrsschl	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
	-0.0505*** (-11.12)	-0.0422*** (-8.93)	-0.0436*** (-9.05)	-0.0412*** (-8.50)	-0.0350*** (-6.97)	-0.0332*** (-6.46)	-0.0404*** (-5.77)	-0.0259*** (-3.48)	-0.0194*** (-2.55)	-0.0491*** (-8.43)	-0.0372*** (-6.09)	-0.0322*** (-5.18)
black	-0.292** (-3.01)	-0.294** (-3.02)	-0.298** (-3.05)	0.145 (1.35)	0.134 (1.25)	0.125 (1.15)	0.145 (1.35)	-0.512*** (-3.38)	-0.550*** (-3.61)	-0.0918 (-0.79)	-0.110 (-0.93)	-0.133 (-1.12)
asian	-0.326 (-1.92)	-0.292 (-1.73)	-1.319*** (-6.92)	-0.314 (-1.70)	-0.286 (-1.55)	-0.675** (-3.22)	-0.572 (-1.78)	-0.675** (-1.54)	-0.621 (-1.48)	-0.495* (-2.37)	-0.437* (-2.08)	-0.546* (-2.11)
hispanic	-0.477*** (-6.03)	-0.443*** (-5.58)	-0.388*** (-4.83)	-0.727*** (-8.46)	-0.709*** (-8.22)	-0.618*** (-7.04)	-0.917*** (-6.50)	-0.877*** (-6.14)	-0.815*** (-5.61)	-0.137 (-1.37)	-0.0995 (-0.99)	0.00229 (0.02)
Bschl	0.0460 (6.12)	0.0444 (5.89)	0.0446 (5.89)	0.0204* (2.45)	0.0200* (2.40)	0.0201* (2.40)	0.0283* (2.36)	0.0254* (2.05)	0.0274* (2.21)	0.0310*** (3.36)	0.0297** (3.17)	0.0314*** (3.35)
Aschl	-0.00999 (-0.80)	-0.0127 (-1.02)	0.0240 (1.84)	0.0204 (1.50)	0.0182 (1.34)	0.0329* (2.30)	0.0302 (1.20)	0.0250 (0.96)	0.0286 (0.98)	0.0397* (2.48)	0.0350* (2.17)	0.0383* (2.13)
Hschl	0.0424 (6.60)	0.0378 (5.85)	0.0359*** (5.53)	0.0450*** (6.35)	0.0420*** (5.90)	0.0376*** (5.23)	0.0483*** (3.79)	0.0414*** (3.18)	0.0379** (2.90)	0.0229* (2.72)	0.0169* (1.97)	0.0121 (1.40)
smoke	-0.243*** (-11.41)	-0.258*** (-12.00)	-0.258*** (-11.88)	-0.0656** (-2.83)	-0.0777*** (-3.33)	-0.0802*** (-3.40)	0.201*** (5.11)	0.172*** (4.33)	0.163*** (4.04)	-0.134*** (-4.36)	-0.158*** (-5.10)	-0.163*** (-5.19)
seatbelt	-0.234*** (-10.26)	-0.229*** (-10.05)	-0.230*** (-10.04)	-0.0982*** (-3.91)	-0.0944*** (-3.76)	-0.109*** (-4.31)	-0.113** (-2.65)	-0.105* (-2.45)	-0.101* (-2.33)	-0.126*** (-4.11)	-0.117*** (-3.83)	-0.127*** (-4.09)
exercise	-0.319*** (-21.11)	-0.314*** (-20.81)	-0.312*** (-20.46)	-0.218*** (-13.45)	-0.214*** (-13.18)	-0.191*** (-11.64)	-0.197*** (-6.57)	-0.186*** (-6.17)	-0.155*** (-5.08)	-0.245*** (-11.83)	-0.237*** (-11.39)	-0.202*** (-9.65)
female	0.0728*** (4.12)	0.0625*** (3.52)	0.0509*** (2.82)	-0.0399* (-2.09)	-0.0485** (-2.52)	-0.0635** (-3.23)	-0.312*** (-8.96)	-0.336*** (-9.55)	-0.351*** (-9.67)	0.00188 (0.08)	-0.0163 (-0.66)	-0.0266 (-1.05)
_lpovent_4		-0.0277 (-1.47)	-0.0241 (-1.22)		-0.0530** (-2.60)	-0.0253* (-1.19)		-0.158*** (-4.43)	-0.105** (-2.86)		-0.103*** (-4.07)	-0.0654* (-2.48)
_lpovent_5		-0.140*** (-6.21)	-0.124*** (-5.16)		-0.110*** (-4.62)	-0.0673** (-2.64)		-0.290*** (-6.67)	-0.214*** (-6.67)		-0.225*** (-7.26)	-0.178*** (-5.38)
urban			-0.0568** (-2.72)			-0.0717** (-3.17)			-0.0818* (-2.17)			-0.0451 (-1.56)
married			-0.0241 (-1.27)			-0.0159 (-0.77)			-0.0381 (-1.02)			0.0321 (1.21)
coglimit			0.0682 (1.92)			0.371*** (9.98)			0.323*** (6.50)			0.356*** (8.93)
risk_attitude			-0.0417* (-2.35)			-0.0634*** (-3.29)			0.0822* (2.39)			-0.0682** (-2.75)
private			0.119*** (4.86)			0.150*** (5.48)			0.109 (1.90)			0.158*** (4.22)
public			0.166*** (5.45)			0.297*** (9.02)			0.279*** (4.37)			0.369*** (8.63)
_cons	0.335*** (3.51)	0.275** (2.86)	1.351*** (9.88)	-0.826*** (-6.70)	-0.862*** (-6.97)	-0.483*** (-3.16)	-4.962 (-)	-5.042*** (-24.06)	-5.006*** (-21.45)	-1.438*** (-7.90)	-1.502*** (-8.19)	-1.529*** (-6.95)
_lpage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_ldatayr*	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1683.2***	1717.7***	1756.5***	4648.4***	4662.2***	4892.4***	16.20***	11.49***	10.52*	1572.4***	1615.8***	1874.8***
Chow test	68.50***	60.16***	46.81***	40.36***	34.83***	28.68***	37944	37944	37944	40226	40226	40226
N	40226	40226	40226	40226	40226	40226	40226	40226	40226	40226	40226	40226

f statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.38: Marginal Effect of Education on Health Outcomes by Region: South

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrschl	-0.0176*** (-11.21)	-0.0146*** (-8.97)	-0.0150*** (-9.09)	-0.0125*** (-8.54)	-0.0106*** (-6.99)	-0.00995*** (-6.47)	-0.00316*** (-5.57)	-0.00202*** (-3.48)	-0.00149* (-2.55)	-0.00846*** (-8.41)	-0.00639*** (-6.08)	-0.00546*** (-5.17)
Bschl	0.0160*** (6.13)	0.0154*** (5.90)	0.0154*** (5.90)	0.00622* (2.46)	0.00607* (2.41)	0.00603* (2.40)	0.00222* (2.35)	0.00198* (2.05)	0.00211* (2.21)	0.00534*** (3.36)	0.00510** (3.17)	0.00531*** (3.35)
Aschl	-0.00347 (-0.80)	-0.00442 (-1.02)	0.00826 (1.84)	0.00621 (1.50)	0.00552 (1.34)	0.00984* (2.30)	0.00236 (1.20)	0.00195 (0.96)	0.00220 (0.98)	0.00685* (2.48)	0.00602* (2.17)	0.00648* (2.13)
Hschl	0.0147*** (6.62)	0.0131*** (5.86)	0.0124*** (5.54)	0.0137*** (6.37)	0.0128*** (5.91)	0.0113*** (5.24)	0.00379*** (3.73)	0.00322** (3.18)	0.00291** (2.90)	0.00395** (2.71)	0.00291* (1.97)	0.00204 (1.40)
smoke	-0.0846*** (-11.49)	-0.0895*** (-12.09)	-0.0889*** (-11.98)	-0.0199** (-2.83)	-0.0236*** (-3.33)	-0.0240*** (-3.40)	0.0157*** (4.97)	0.0134*** (4.33)	0.0125*** (4.04)	-0.0230*** (-4.36)	-0.0271*** (-5.11)	-0.0276*** (-5.19)
seatbelt	-0.0814*** (-10.32)	-0.0796*** (-10.10)	-0.0795*** (-10.09)	-0.0299*** (-3.91)	-0.0287*** (-3.76)	-0.0327*** (-4.31)	-0.00884** (-2.63)	-0.00818* (-2.45)	-0.00778* (-2.32)	-0.0217*** (-4.11)	-0.0202*** (-3.84)	-0.0215*** (-4.09)
exercise	-0.111*** (-21.51)	-0.109*** (-21.18)	-0.108*** (-20.82)	-0.0664*** (-13.56)	-0.0651*** (-13.29)	-0.0572*** (-11.71)	-0.0154*** (-6.30)	-0.0145*** (-6.20)	-0.0119*** (-5.12)	-0.0423*** (-11.85)	-0.0407*** (-11.41)	-0.0343*** (-9.67)
chi2	1683.2***	1717.7***	1756.5***	4648.4***	4662.2***	4892.4***	.	.	.	1572.4***	1615.8***	1874.8***
Chow test	68.50***	60.16***	46.81***	40.36***	34.83***	28.68***	16.20***	11.49**	10.52*	15.39**	12.05**	12.93**
N	40226	40226	40226	40226	40226	40226	37944	37944	37944	40226	40226	40226

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.39: Effect of Education on Health Behaviors by Region: West

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.175*** (-18.75)	-0.156*** (-16.66)	-0.150*** (-15.73)	0.0538*** (6.76)	0.0486*** (5.92)	0.0412*** (4.94)	0.0534*** (8.83)	0.0429*** (6.93)	0.0365*** (5.85)
black	-0.825** (-2.68)	-0.912** (-3.01)	-1.006** (-3.27)	0.567 (1.75)	0.578 (1.75)	0.502 (1.47)	-0.654** (-2.82)	-0.584* (-2.53)	-0.488* (-2.08)
asian	-1.874*** (-9.63)	-1.854*** (-9.38)	-1.799*** (-8.85)	0.791*** (3.43)	0.773*** (3.31)	0.735** (2.85)	0.353* (2.46)	0.337* (2.35)	0.346* (2.39)
hispanic	-2.625*** (-18.48)	-2.600*** (-18.45)	-2.520*** (-17.69)	1.383*** (9.89)	1.363*** (9.69)	1.242*** (8.70)	0.139 (1.45)	0.123 (1.29)	0.0272 (0.28)
Bschl	0.0733** (3.18)	0.0750** (3.29)	0.0778*** (3.38)	-0.0249 (-1.01)	-0.0248 (-0.99)	-0.0203 (-0.78)	0.0413* (2.37)	0.0388* (2.24)	0.0326 (1.85)
Aschl	0.108*** (7.89)	0.106*** (7.62)	0.104*** (7.33)	-0.00463 (-0.29)	-0.00334 (-0.20)	-0.00267 (-0.15)	-0.0338*** (-3.33)	-0.0325** (-3.21)	-0.0348*** (-3.41)
Hschl	0.166** (15.24)	0.159** (14.64)	0.155** (14.11)	-0.0716*** (-6.50)	-0.0690*** (-6.22)	-0.0641*** (-5.71)	-0.0216** (-2.97)	-0.0180* (-2.47)	-0.0125 (-1.71)
female	-0.281*** (-10.10)	-0.306*** (-10.92)	-0.324*** (-11.21)	0.356*** (11.42)	0.360*** (11.52)	0.339*** (10.66)	-0.160*** (-8.16)	-0.151*** (-7.69)	-0.122*** (-6.12)
_Iповcat_4		-0.199*** (-6.33)	-0.0893** (-2.72)		0.00415 (0.11)	-0.0445 (-1.18)		0.124*** (5.35)	0.0831*** (3.40)
_Iповcat_5		-0.384*** (-10.58)	-0.216*** (-5.60)		0.0857* (2.10)	0.0184 (0.43)		0.203*** (8.05)	0.149*** (5.49)
urban			-0.162*** (-3.44)			0.341*** (7.26)			0.0641 (1.89)
married			-0.313*** (-10.54)			0.122*** (3.65)			-0.0260 (-1.21)
coglimt			0.150* (2.49)			-0.101 (-1.46)			-0.616*** (-12.80)
risk_attitude			0.106*** (3.91)			-0.242*** (-7.94)			0.154*** (7.41)
private			-0.187*** (-4.77)			0.0652 (1.46)			-0.0183 (-0.63)
public			-0.0221 (-0.48)			0.0638 (1.19)			-0.171*** (-4.98)
_cons	1.779*** (10.77)	1.719*** (10.45)	2.160*** (9.23)	-0.0545 (-0.35)	-0.0161 (-0.10)	-1.065*** (-4.44)	-0.348** (-2.86)	-0.315** (-2.58)	-0.0250 (-0.13)
_Iage*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_Idatayr*	No	No	Yes	No	No	Yes	No	No	Yes
chi2	808.3***	906.9***	1088.8***	483.2***	483.9***	675.7***	550.9***	616.2***	960.0***
Chow test	237.18***	216.93***	200.75***	26.08***	22.06***	18.89***	46.82***	43.00***	35.66***
N	23884	23884	23884	23884	23884	23884	23884	23884	23884

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.40: Marginal Effect of Education on Health Behaviors by Region: West

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline smoke	+ Income smoke	+ controls smoke	Baseline seatbelt	+ Income seatbelt	+ controls seatbelt	Baseline exercise	+ Income exercise	+ controls exercise
yrsschl	-0.0361 ^{***} (-19.13)	-0.0319 ^{***} (-16.93)	-0.0300 ^{***} (-15.96)	0.00732 ^{***} (6.73)	0.00661 ^{***} (5.89)	0.00546 ^{***} (4.92)	0.0205 ^{***} (8.89)	0.0164 ^{***} (6.96)	0.0138 ^{***} (5.87)
Bschl	0.0151 ^{**} (3.18)	0.0153 ^{***} (3.29)	0.0156 ^{***} (3.38)	-0.00338 (-1.01)	-0.00337 (-0.99)	-0.00269 (-0.78)	0.0159 [*] (2.37)	0.0148 [*] (2.24)	0.0123 (1.85)
Aschl	0.0223 ^{***} (7.95)	0.0217 ^{***} (7.68)	0.0209 ^{***} (7.39)	-0.000630 (-0.29)	-0.000453 (-0.20)	-0.000354 (-0.15)	-0.0129 ^{***} (-3.34)	-0.0124 ^{**} (-3.21)	-0.0131 ^{***} (-3.42)
Hschl	0.0342 ^{***} (15.44)	0.0326 ^{***} (14.81)	0.0310 ^{***} (14.26)	-0.00974 ^{***} (-6.46)	-0.00939 ^{***} (-6.18)	-0.00849 ^{***} (-5.68)	-0.00827 ^{**} (-2.97)	-0.00688 [*] (-2.47)	-0.00471 (-1.71)
chi2	808.3 ^{***}	906.9 ^{***}	1088.8 ^{***}	483.2 ^{***}	483.9 ^{***}	675.7 ^{***}	550.9 ^{***}	616.2 ^{***}	960.0 ^{***}
Chow test	237.18 ^{***}	216.93 ^{***}	200.75 ^{***}	26.08 ^{***}	22.06 ^{***}	18.89 ^{***}	46.82 ^{***}	43.00 ^{***}	35.66 ^{***}
N	23884	23884	23884	23884	23884	23884	23884	23884	23884

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table B.41: Effect of Education on Health Outcomes by Region: West

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
yrsschl	-0.0617*** (-8.56)	+ Income bmi (-7.70)	+ controls bmi (-7.65)	Baseline hypertensive (-5.31)	+ Income hypertensive (-4.26)	+ controls hypertensive (-4.11)	Baseline heart_attack (-3.04)	+ Income heart_attack (-1.98)	+ controls heart_attack (-1.87)	Baseline diabetes (-4.50)	+ Income diabetes (-3.47)	+ controls diabetes (-2.86)
black	-0.193 (-0.76)	-0.207 (-0.82)	-0.265 (-1.03)	0.0394 (0.13)	0.0123 (0.04)	-0.0531 (-0.18)	-0.430 (-0.85)	-0.444 (-0.85)	-0.516 (-1.01)	0.251 (0.77)	0.233 (0.71)	0.173 (0.53)
asian	-1.220*** (-6.51)	-1.211*** (-6.44)	-1.323*** (-6.72)	-0.334 (-1.87)	-0.317 (-1.78)	-0.381* (-2.09)	-0.492 (-1.56)	-0.470 (-1.47)	-0.550 (-1.74)	-0.0935 (-0.43)	-0.0755 (-0.34)	-0.115 (-0.51)
hispanic	-0.611*** (-5.46)	-0.596*** (-5.32)	-0.553*** (-4.91)	-0.439*** (-3.59)	-0.422 (-3.46)	-0.360** (-2.91)	-0.591** (-2.92)	-0.591** (-2.87)	-0.568** (-2.77)	-0.0832 (-0.55)	-0.0735 (-0.48)	0.0381 (0.24)
Bschl	0.0366 (1.93)	0.0366 (1.93)	0.0398* (2.07)	0.0341 (1.53)	0.0345 (1.58)	0.0382 (1.75)	0.0294 (0.75)	0.0265 (0.65)	0.0304 (0.76)	0.00696 (0.28)	0.00603 (0.24)	0.00976 (0.39)
Aschl	0.0400** (3.01)	0.0392** (2.94)	0.0427** (3.08)	0.0327** (2.59)	0.0312* (2.46)	0.0331* (2.57)	0.0166 (0.69)	0.0133 (0.55)	0.0170 (0.71)	0.0199 (1.26)	0.0183 (1.14)	0.0210 (1.30)
Hschl	0.0582*** (6.91)	0.0559*** (6.60)	0.0536*** (6.32)	0.0366*** (3.91)	0.0334*** (3.56)	0.0297** (3.14)	0.0411* (2.47)	0.0376* (2.21)	0.0360* (2.11)	0.0346** (2.97)	0.0316** (2.67)	0.0258* (2.15)
smoke	-0.165*** (-4.98)	-0.173*** (-5.21)	-0.182*** (-5.43)	0.0321 (0.89)	0.0192 (0.53)	0.00932 (0.26)	0.103 (1.58)	0.0725 (1.10)	0.0610 (0.91)	-0.0629 (-1.30)	-0.0805 (-1.65)	-0.0895 (-1.79)
seatbelt	-0.257*** (-6.58)	-0.255*** (-6.52)	-0.255*** (-6.52)	-0.114* (-2.57)	-0.110* (-2.49)	-0.120** (-2.69)	-0.181* (-2.33)	-0.177* (-2.24)	-0.171* (-2.14)	-0.127* (-2.25)	-0.124* (-2.19)	-0.126* (-2.16)
exercise	-0.344*** (-16.74)	-0.340*** (-16.55)	-0.336*** (-16.23)	-0.163*** (-7.41)	-0.157*** (-7.16)	-0.137*** (-6.20)	-0.225*** (-5.22)	-0.212*** (-4.88)	-0.186*** (-4.19)	-0.240*** (-8.43)	-0.230*** (-8.08)	-0.194*** (-6.72)
female	0.0558* (2.37)	0.0510* (2.17)	0.0280 (1.17)	-0.0936*** (-3.65)	-0.100*** (-3.90)	-0.124*** (-4.72)	-0.349*** (-6.90)	-0.370*** (-7.32)	-0.377*** (-7.07)	-0.085* (-2.53)	-0.0963** (-2.84)	-0.117*** (-3.35)
_lpoivat_4		-0.0135 (-0.51)	0.00341 (0.12)		-0.0322 (-1.12)	-0.00966 (-0.32)		-0.278** (-2.06)	-0.245*** (-4.44)		-0.115* (-3.13)	-0.0825* (-2.18)
_lpoivat_5		-0.0949** (-3.16)	-0.0648* (-2.04)		-0.144*** (-4.50)	-0.101** (-2.96)		-0.316*** (-5.34)	-0.265*** (-4.35)		-0.215*** (-5.13)	-0.170*** (-3.89)
urban			-0.0786* (-1.97)			-0.0755 (-1.76)			0.00582 (0.08)			-0.117* (-2.11)
married			-0.0647* (-2.54)			-0.0576* (-2.05)			-0.0236 (-0.43)			0.0255 (0.68)
coglimt			0.0282 (0.54)			0.341*** (6.23)			0.263*** (3.53)			0.401*** (6.83)
risk_attitude			-0.0682** (-2.87)			-0.0405 (-1.57)			0.105* (2.09)			-0.0551 (-1.64)
private			0.102** (3.05)			0.150*** (3.85)			0.178 (1.93)			0.246*** (4.41)
public			0.190*** (4.82)			0.242*** (5.45)			0.290** (2.93)			0.421*** (7.05)
_cons	0.272 (1.82)	0.237 (1.58)	1.254*** (5.94)	-0.887*** (-4.88)	-0.934*** (-5.14)	-0.593* (-2.45)	-1.416*** (-4.27)	-1.383*** (-4.10)	-1.389** (-2.94)	-1.678*** (-5.39)	-1.707*** (-5.45)	-1.731*** (-4.68)
_l_ige*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_l_datayr*	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
chi2	1025.7***	1030.8***	1082.0***	2590.6***	2604.9***	2759.6***	676.6***	624.8***	677.7***	765.5***	786.6***	922.5***
Chow test	47.75***	43.61***	40.05***	15.98**	13.58**	11.87***	6.20	5.01	4.56	9.49*	7.71*	4.81
N	23884	23884	23884	23884	23884	23884	20176	20176	20176	23884	23884	23884

f statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.42: Marginal Effect of Education on Health Outcomes by Region: West

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Baseline bmi	+ Income bmi	+ controls bmi	Baseline hypertensive	+ Income hypertensive	+ controls hypertensive	Baseline heart_attack	+ Income heart_attack	+ controls heart_attack	Baseline diabetes	+ Income diabetes	+ controls diabetes
yrsschl	-0.0195*** (-8.62)	-0.0178*** (-7.74)	-0.0177*** (-7.68)	-0.0114*** (-5.33)	-0.00928*** (-4.27)	-0.00893*** (-4.12)	-0.00255*** (-3.02)	-0.00170* (-1.98)	-0.00159 (-1.86)	-0.00663*** (-4.50)	-0.00520*** (-3.47)	-0.00431*** (-2.86)
Bschl	0.0116 (1.93)	0.0116 (1.93)	0.0125* (2.07)	0.00944 (1.53)	0.00954 (1.58)	0.0104 (1.75)	0.00196 (0.75)	0.00176 (0.65)	0.00198 (0.76)	0.00103 (0.28)	0.000886 (0.24)	0.00141 (0.39)
Aschl	0.0126** (3.01)	0.0123** (2.94)	0.0134** (3.08)	0.00906** (2.59)	0.00863* (2.46)	0.00903** (2.58)	0.00111 (0.69)	0.000883 (0.55)	0.00111 (0.71)	0.00294 (1.26)	0.00268 (1.14)	0.00304 (1.30)
Hschl	0.0184*** (6.93)	0.0176*** (6.63)	0.0168*** (6.34)	0.0101*** (3.92)	0.00924*** (3.56)	0.00812** (3.14)	0.00274* (2.46)	0.00249* (2.21)	0.00235* (2.11)	0.00510** (2.97)	0.00464** (2.67)	0.00373* (2.15)
smoke	-0.0520*** (-4.99)	-0.0546*** (-5.23)	-0.0570*** (-5.44)	0.00887 (0.89)	0.00531 (0.53)	0.00255 (0.26)	0.00687 (1.58)	0.00479 (1.10)	0.00399 (0.91)	-0.00927 (-1.30)	-0.0118 (-1.65)	-0.0129 (-1.79)
seatbelt	-0.0811*** (-6.60)	-0.0803*** (-6.54)	-0.0799*** (-6.55)	-0.0314* (-2.57)	-0.0305* (-2.49)	-0.0328** (-2.69)	-0.0121* (-2.33)	-0.0117* (-2.25)	-0.0112* (-2.14)	-0.0187* (-2.25)	-0.0182* (-2.19)	-0.0182* (-2.16)
exercise	-0.108*** (-17.02)	-0.107*** (-16.82)	-0.105*** (-16.48)	-0.0450*** (-7.46)	-0.0434*** (-7.20)	-0.0375*** (-6.23)	-0.0150*** (-5.10)	-0.0140*** (-4.78)	-0.0121*** (-4.12)	-0.0353*** (-8.41)	-0.0338*** (-8.07)	-0.0280*** (-6.71)
chi2	1025.7***	1030.8***	1082.0***	2590.6***	2604.9***	2759.6***	676.6***	624.8***	677.7***	765.5***	786.6***	922.5***
Chow test	47.75***	43.61***	40.05***	15.98**	13.58**	11.87**	6.20	5.01	4.56	9.49*	7.71*	4.81
N	23884	23884	23884	23884	23884	23884	20176	20176	20176	23884	23884	23884

t statistics in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B.4.3: Summary Statistics using Three Years of Data

Male				Female				
Age group	Income Level	Educ	total	white	Black	Asian	Hispanic	
Age 1	High	H	1118	540	200	40	338	
		NH	821	197	82	6	536	
	Middle	H	1939	737	282	46	874	
		NH	1619	987	258	79	295	
	Low	H	409	147	30	3	229	
		NH	2028	1134	288	82	524	
	Age 2	High	H	1923	1413	169	168	173
			NH	97	51	5	0	41
		Middle	H	2020	1464	174	168	214
			NH	832	509	179	20	124
Low		H	629	236	117	20	256	
		NH	1461	745	296	40	380	
Age 3		High	H	1261	877	205	46	133
			NH	336	154	41	5	136
		Middle	H	1597	1031	246	51	269
			NH	2746	2247	227	112	160
	Low	H	158	103	13	4	38	
		NH	2904	2350	240	116	198	
	Age 1	High	H	419	306	79	16	18
			NH	464	210	105	2	147
		Middle	H	883	516	184	18	165
			NH	500	414	46	15	25
Low		H	231	163	33	3	32	
		NH	731	577	79	18	57	
Age 2		High	H	881	773	47	35	26
			NH	109	76	10	2	21
		Middle	H	990	849	57	37	47
			NH	14553	9403	1846	576	2728
	Age 3	High	H	2037	848	591	58	540
			NH	1141	260	207	14	660
		Middle	H	3178	1108	798	72	1200
			NH	1877	1146	343	84	304
		Low	H	271	89	19	3	160
			NH	2148	1235	362	87	464
Age 1		High	H	2120	1537	210	154	219
			NH	40	20	3	0	17
		Middle	H	2160	1557	213	154	236
			NH	1259	703	374	22	160
	Low	H	860	276	204	8	372	
		NH	2119	979	578	30	532	
	Age 2	High	H	1613	1130	262	51	170
			NH	347	127	56	16	148
		Middle	H	1960	1257	318	67	318
			NH	2912	2358	263	116	175
Low		H	141	75	12	12	42	
		NH	3053	2433	275	128	217	
Age 3		High	H	806	617	125	12	52
			NH	882	431	208	18	225
		Middle	H	1688	1048	333	30	277
			NH	732	628	68	12	24
	Low	H	261	165	34	6	56	
		NH	993	793	102	18	80	
	Age 1	High	H	863	758	42	34	29
			NH	92	58	15	6	13
		Middle	H	955	816	57	40	42
			NH	18254	11226	3036	626	3366

H- Individuals with high school diploma and NH- Individuals with no high school diploma

Table B.44: Semiparametric CATE of Education on Smoking

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.37	-0.36	0.14	0.15	-0.42	-0.41	0.14	0.16
	Middle	-0.27	-0.26	0.12	0.14	-0.34	-0.33	0.14	0.15
	Low	-0.16	-0.15	0.10	0.11	-0.22	-0.21	0.12	0.13
Age 2	High	-0.39	-0.38	0.14	0.15	-0.42	-0.42	0.14	0.16
	Middle	-0.29	-0.28	0.13	0.14	-0.36	-0.35	0.14	0.15
	Low	-0.17	-0.16	0.10	0.11	-0.23	-0.22	0.12	0.13
Age 3	High	-0.42	-0.41	0.09	0.10	-0.45	-0.44	0.11	0.12
	Middle	-0.27	-0.26	0.07	0.08	-0.32	-0.30	0.09	0.10
	Low	-0.12	-0.11	0.05	0.05	-0.15	-0.15	0.06	0.07
Black									
Age 1	High	-0.37	-0.36	0.13	0.15	-0.41	-0.40	0.14	0.16
	Middle	-0.27	-0.26	0.12	0.13	-0.33	-0.32	0.13	0.15
	Low	-0.15	-0.14	0.09	0.10	-0.21	-0.19	0.11	0.12
Age 2	High	-0.39	-0.39	0.13	0.15	-0.42	-0.41	0.14	0.16
	Middle	-0.29	-0.28	0.12	0.13	-0.35	-0.34	0.13	0.15
	Low	-0.16	-0.15	0.09	0.10	-0.22	-0.21	0.11	0.12
Age 3	High	-0.49	-0.47	0.08	0.09	-0.50	-0.49	0.10	0.11
	Middle	-0.32	-0.30	0.06	0.07	-0.36	-0.35	0.08	0.09
	Low	-0.14	-0.13	0.04	0.04	-0.18	-0.17	0.06	0.06
Asian									
Age 1	High	-0.28	-0.26	0.09	0.10	-0.32	-0.31	0.11	0.13
	Middle	-0.16	-0.14	0.07	0.08	-0.21	-0.19	0.09	0.10
	Low	-0.07	-0.06	0.04	0.05	-0.10	-0.09	0.06	0.07
Age 2	High	-0.33	-0.31	0.09	0.10	-0.37	-0.35	0.11	0.12
	Middle	-0.19	-0.17	0.07	0.08	-0.24	-0.22	0.09	0.10
	Low	-0.08	-0.07	0.05	0.05	-0.11	-0.10	0.06	0.07
Age 3	High	-0.45	-0.42	0.04	0.05	-0.49	-0.46	0.06	0.07
	Middle	-0.25	-0.23	0.03	0.03	-0.30	-0.27	0.04	0.05
	Low	-0.09	-0.08	0.01	0.02	-0.12	-0.10	0.02	0.03
Hispanic									
Age 1	High	-0.52	-0.51	0.09	0.09	-0.53	-0.52	0.11	0.12
	Middle	-0.36	-0.34	0.07	0.07	-0.40	-0.39	0.09	0.10
	Low	-0.17	-0.16	0.04	0.05	-0.21	-0.20	0.06	0.06
Age 2	High	-0.58	-0.57	0.09	0.09	-0.58	-0.57	0.11	0.12
	Middle	-0.43	-0.42	0.07	0.07	-0.47	-0.45	0.09	0.10
	Low	-0.23	-0.21	0.04	0.05	-0.27	-0.26	0.06	0.06
Age 3	High	-0.77	-0.75	0.04	0.04	-0.77	-0.76	0.05	0.06
	Middle	-0.61	-0.59	0.02	0.03	-0.64	-0.62	0.04	0.04
	Low	-0.35	-0.33	0.01	0.01	-0.40	-0.38	0.02	0.02

Table B.45: Semiparametric CATE of Education on Exercising

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.489	-0.480	0.068	0.081	-0.456	-0.447	0.068	0.081
	Middle	-0.440	-0.429	0.068	0.080	-0.395	-0.384	0.066	0.078
	Low	-0.404	-0.392	0.067	0.080	-0.350	-0.339	0.064	0.077
Age 2	High	-0.497	-0.489	0.068	0.080	-0.470	-0.463	0.069	0.082
	Middle	-0.464	-0.454	0.068	0.082	-0.423	-0.413	0.067	0.080
	Low	-0.431	-0.420	0.068	0.080	-0.378	-0.367	0.066	0.078
Age 3	High	-0.486	-0.479	0.067	0.078	-0.473	-0.467	0.068	0.080
	Middle	-0.490	-0.481	0.068	0.080	-0.460	-0.451	0.068	0.081
	Low	-0.474	-0.461	0.069	0.082	-0.424	-0.412	0.068	0.080
Black									
Age 1	High	-0.512	-0.504	0.067	0.079	-0.481	-0.473	0.068	0.082
	Middle	-0.488	-0.475	0.068	0.081	-0.443	-0.431	0.068	0.081
	Low	-0.462	-0.445	0.068	0.081	-0.406	-0.391	0.067	0.080
Age 2	High	-0.507	-0.499	0.066	0.077	-0.483	-0.475	0.068	0.080
	Middle	-0.504	-0.493	0.068	0.080	-0.465	-0.453	0.068	0.082
	Low	-0.487	-0.472	0.069	0.081	-0.433	-0.419	0.068	0.080
Age 3	High	-0.472	-0.464	0.064	0.075	-0.461	-0.454	0.067	0.078
	Middle	-0.511	-0.501	0.067	0.080	-0.481	-0.473	0.068	0.081
	Low	-0.521	-0.505	0.068	0.080	-0.474	-0.458	0.068	0.081
Asian									
Age 1	High	-0.525	-0.508	0.067	0.080	-0.485	-0.470	0.069	0.081
	Middle	-0.489	-0.467	0.069	0.081	-0.440	-0.418	0.068	0.081
	Low	-0.461	-0.435	0.068	0.081	-0.403	-0.379	0.067	0.079
Age 2	High	-0.526	-0.510	0.066	0.078	-0.491	-0.479	0.068	0.082
	Middle	-0.511	-0.489	0.068	0.080	-0.462	-0.444	0.068	0.080
	Low	-0.487	-0.462	0.069	0.081	-0.431	-0.407	0.068	0.081
Age 3	High	-0.500	-0.487	0.064	0.076	-0.478	-0.469	0.067	0.079
	Middle	-0.524	-0.507	0.067	0.079	-0.486	-0.471	0.068	0.080
	Low	-0.523	-0.500	0.068	0.081	-0.470	-0.448	0.068	0.081
Hispanic									
Age 1	High	-0.461	-0.454	0.067	0.079	-0.467	-0.460	0.068	0.081
	Middle	-0.479	-0.470	0.068	0.081	-0.463	-0.456	0.068	0.081
	Low	-0.465	-0.452	0.068	0.081	-0.425	-0.414	0.067	0.080
Age 2	High	-0.439	-0.431	0.066	0.078	-0.453	-0.445	0.068	0.081
	Middle	-0.479	-0.471	0.068	0.080	-0.472	-0.466	0.068	0.082
	Low	-0.484	-0.472	0.069	0.080	-0.449	-0.439	0.068	0.079
Age 3	High	-0.388	-0.377	0.064	0.075	-0.416	-0.404	0.067	0.080
	Middle	-0.456	-0.448	0.067	0.079	-0.466	-0.458	0.068	0.080
	Low	-0.493	-0.484	0.068	0.080	-0.472	-0.464	0.069	0.081

Table B.46: Semiparametric CATE of Education on BMI

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.39	-0.38	0.02	0.04	-0.39	-0.38	0.02	0.04
	Middle	-0.33	-0.32	0.02	0.04	-0.33	-0.32	0.02	0.03
	Low	-0.26	-0.25	0.02	0.03	-0.24	-0.23	0.02	0.03
Age 2	High	-0.44	-0.43	0.03	0.04	-0.44	-0.43	0.03	0.04
	Middle	-0.39	-0.38	0.03	0.04	-0.38	-0.37	0.02	0.04
	Low	-0.30	-0.29	0.02	0.03	-0.29	-0.28	0.02	0.03
Age 3	High	-0.47	-0.46	0.02	0.03	-0.49	-0.48	0.02	0.03
	Middle	-0.37	-0.36	0.02	0.03	-0.39	-0.37	0.02	0.03
	Low	-0.26	-0.25	0.02	0.03	-0.26	-0.25	0.02	0.03
Black									
Age 1	High	-0.46	-0.45	0.03	0.04	-0.46	-0.45	0.03	0.04
	Middle	-0.43	-0.41	0.03	0.04	-0.42	-0.40	0.03	0.04
	Low	-0.35	-0.34	0.02	0.04	-0.34	-0.32	0.02	0.04
Age 2	High	-0.49	-0.48	0.03	0.04	-0.48	-0.48	0.03	0.04
	Middle	-0.47	-0.46	0.03	0.04	-0.46	-0.45	0.03	0.04
	Low	-0.40	-0.39	0.03	0.04	-0.39	-0.37	0.03	0.04
Age 3	High	-0.50	-0.49	0.03	0.04	-0.52	-0.51	0.03	0.04
	Middle	-0.44	-0.43	0.03	0.04	-0.45	-0.44	0.02	0.04
	Low	-0.35	-0.33	0.02	0.04	-0.34	-0.33	0.02	0.03
Asian									
Age 1	High	-0.27	-0.25	0.01	0.02	-0.30	-0.28	0.01	0.02
	Middle	-0.16	-0.14	0.01	0.02	-0.17	-0.15	0.01	0.02
	Low	-0.08	-0.07	0.01	0.01	-0.08	-0.07	0.01	0.01
Age 2	High	-0.35	-0.32	0.01	0.02	-0.38	-0.35	0.01	0.02
	Middle	-0.21	-0.19	0.01	0.02	-0.23	-0.21	0.01	0.02
	Low	-0.11	-0.10	0.01	0.02	-0.11	-0.10	0.01	0.01
Age 3	High	-0.47	-0.44	0.01	0.01	-0.52	-0.48	0.01	0.01
	Middle	-0.28	-0.26	0.01	0.01	-0.32	-0.29	0.01	0.01
	Low	-0.13	-0.11	0.01	0.01	-0.14	-0.13	0.01	0.01
Hispanic									
Age 1	High	-0.52	-0.51	0.03	0.04	-0.54	-0.53	0.02	0.04
	Middle	-0.45	-0.44	0.03	0.04	-0.46	-0.45	0.02	0.04
	Low	-0.34	-0.33	0.02	0.03	-0.34	-0.33	0.02	0.03
Age 2	High	-0.52	-0.52	0.03	0.04	-0.54	-0.53	0.03	0.04
	Middle	-0.48	-0.47	0.03	0.04	-0.49	-0.49	0.03	0.04
	Low	-0.40	-0.39	0.02	0.04	-0.40	-0.39	0.02	0.03
Age 3	High	-0.61	-0.60	0.02	0.04	-0.64	-0.62	0.02	0.03
	Middle	-0.54	-0.53	0.02	0.04	-0.57	-0.56	0.02	0.03
	Low	-0.42	-0.41	0.02	0.03	-0.44	-0.43	0.02	0.03

Table B.47: Semiparametric CATE of Education on Diabetes

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.23	-0.22	0.02	0.02	-0.27	-0.26	0.02	0.02
	Middle	-0.10	-0.09	0.01	0.01	-0.12	-0.12	0.01	0.02
	Low	-0.03	-0.03	0.01	0.01	-0.04	-0.04	0.01	0.01
Age 2	High	-0.33	-0.32	0.04	0.05	-0.37	-0.36	0.05	0.06
	Middle	-0.19	-0.19	0.04	0.05	-0.22	-0.21	0.04	0.05
	Low	-0.10	-0.09	0.03	0.04	-0.12	-0.11	0.03	0.04
Age 3	High	-0.45	-0.43	0.06	0.07	-0.48	-0.47	0.06	0.07
	Middle	-0.31	-0.30	0.05	0.06	-0.34	-0.33	0.05	0.06
	Low	-0.18	-0.17	0.04	0.05	-0.20	-0.19	0.04	0.06
Black									
Age 1	High	-0.29	-0.28	0.02	0.03	-0.34	-0.32	0.02	0.03
	Middle	-0.15	-0.14	0.02	0.02	-0.18	-0.17	0.02	0.03
	Low	-0.06	-0.05	0.01	0.02	-0.07	-0.06	0.02	0.02
Age 2	High	-0.40	-0.38	0.06	0.07	-0.43	-0.42	0.06	0.07
	Middle	-0.26	-0.25	0.05	0.06	-0.29	-0.28	0.05	0.06
	Low	-0.16	-0.14	0.04	0.05	-0.18	-0.16	0.04	0.05
Age 3	High	-0.48	-0.47	0.07	0.08	-0.50	-0.49	0.07	0.08
	Middle	-0.37	-0.36	0.06	0.07	-0.40	-0.39	0.06	0.08
	Low	-0.25	-0.24	0.05	0.07	-0.28	-0.26	0.06	0.07
Asian									
Age 1	High	-0.24	-0.21	0.02	0.02	-0.28	-0.25	0.02	0.02
	Middle	-0.11	-0.09	0.01	0.02	-0.13	-0.11	0.01	0.02
	Low	-0.04	-0.03	0.01	0.01	-0.04	-0.04	0.01	0.01
Age 2	High	-0.34	-0.31	0.04	0.05	-0.38	-0.35	0.05	0.06
	Middle	-0.20	-0.18	0.04	0.05	-0.23	-0.21	0.04	0.05
	Low	-0.11	-0.09	0.03	0.04	-0.12	-0.11	0.03	0.04
Age 3	High	-0.45	-0.43	0.06	0.07	-0.48	-0.46	0.06	0.07
	Middle	-0.31	-0.29	0.05	0.06	-0.35	-0.33	0.05	0.07
	Low	-0.19	-0.17	0.04	0.05	-0.21	-0.19	0.04	0.06
Hispanic									
Age 1	High	-0.57	-0.56	0.02	0.02	-0.62	-0.60	0.02	0.02
	Middle	-0.36	-0.35	0.02	0.02	-0.41	-0.40	0.02	0.02
	Low	-0.16	-0.15	0.01	0.01	-0.19	-0.18	0.01	0.02
Age 2	High	-0.60	-0.58	0.05	0.06	-0.62	-0.61	0.05	0.06
	Middle	-0.45	-0.43	0.04	0.05	-0.49	-0.47	0.05	0.06
	Low	-0.26	-0.24	0.04	0.04	-0.29	-0.28	0.04	0.05
Age 3	High	-0.63	-0.62	0.06	0.08	-0.64	-0.63	0.06	0.08
	Middle	-0.55	-0.53	0.06	0.07	-0.57	-0.56	0.06	0.07
	Low	-0.38	-0.36	0.05	0.06	-0.42	-0.40	0.05	0.06

Table B.48: Semiparametric CATE of Education on Excellent SRH

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.663	-0.653	0.064	0.074	-0.623	-0.612	0.069	0.079
	Middle	-0.685	-0.674	0.075	0.086	-0.649	-0.639	0.079	0.092
	Low	-0.638	-0.625	0.085	0.098	-0.605	-0.591	0.089	0.102
Age 2	High	-0.661	-0.649	0.045	0.052	-0.615	-0.603	0.050	0.058
	Middle	-0.743	-0.732	0.057	0.065	-0.705	-0.694	0.062	0.071
	Low	-0.741	-0.731	0.069	0.079	-0.709	-0.698	0.074	0.085
Age 3	High	-0.548	-0.534	0.039	0.045	-0.500	-0.486	0.043	0.051
	Middle	-0.690	-0.678	0.050	0.058	-0.647	-0.634	0.055	0.063
	Low	-0.749	-0.738	0.063	0.073	-0.715	-0.703	0.068	0.079
Black									
Age 1	High	-0.646	-0.633	0.057	0.066	-0.603	-0.590	0.062	0.072
	Middle	-0.704	-0.690	0.068	0.080	-0.666	-0.652	0.073	0.084
	Low	-0.683	-0.665	0.080	0.092	-0.648	-0.631	0.084	0.097
Age 2	High	-0.618	-0.603	0.038	0.045	-0.570	-0.555	0.043	0.051
	Middle	-0.736	-0.723	0.049	0.057	-0.695	-0.682	0.054	0.063
	Low	-0.769	-0.756	0.063	0.073	-0.737	-0.723	0.067	0.078
Age 3	High	-0.488	-0.471	0.032	0.038	-0.441	-0.423	0.037	0.043
	Middle	-0.660	-0.643	0.043	0.049	-0.613	-0.596	0.048	0.056
	Low	-0.760	-0.746	0.056	0.065	-0.723	-0.708	0.061	0.070
Asian									
Age 1	High	-0.688	-0.666	0.061	0.071	-0.647	-0.625	0.065	0.077
	Middle	-0.714	-0.693	0.072	0.083	-0.679	-0.657	0.076	0.089
	Low	-0.674	-0.647	0.083	0.095	-0.641	-0.614	0.086	0.099
Age 2	High	-0.685	-0.659	0.042	0.049	-0.644	-0.613	0.046	0.055
	Middle	-0.770	-0.747	0.053	0.063	-0.730	-0.709	0.058	0.069
	Low	-0.770	-0.749	0.066	0.077	-0.741	-0.717	0.071	0.082
Age 3	High	-0.574	-0.541	0.036	0.043	-0.525	-0.493	0.040	0.047
	Middle	-0.714	-0.689	0.046	0.055	-0.670	-0.645	0.051	0.060
	Low	-0.776	-0.754	0.059	0.069	-0.744	-0.720	0.064	0.075
Hispanic									
Age 1	High	-0.433	-0.422	0.062	0.073	-0.403	-0.392	0.067	0.078
	Middle	-0.556	-0.545	0.073	0.086	-0.520	-0.509	0.078	0.091
	Low	-0.607	-0.593	0.084	0.097	-0.573	-0.558	0.087	0.103
Age 2	High	-0.360	-0.348	0.043	0.051	-0.327	-0.314	0.048	0.056
	Middle	-0.530	-0.516	0.055	0.064	-0.487	-0.475	0.060	0.070
	Low	-0.656	-0.643	0.068	0.079	-0.616	-0.604	0.072	0.085
Age 3	High	-0.243	-0.231	0.037	0.044	-0.219	-0.209	0.042	0.049
	Middle	-0.413	-0.397	0.048	0.056	-0.376	-0.361	0.053	0.062
	Low	-0.594	-0.578	0.061	0.072	-0.551	-0.536	0.066	0.076

Table B.49: Semiparametric CATE of Smoking on Excellent SRH

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.450	-0.439	-0.074	-0.066	-0.514	-0.504	-0.080	-0.070
	Middle	-0.428	-0.419	-0.088	-0.077	-0.482	-0.472	-0.093	-0.081
	Low	-0.443	-0.431	-0.100	-0.087	-0.485	-0.475	-0.103	-0.091
Age 2	High	-0.423	-0.410	-0.052	-0.045	-0.500	-0.488	-0.058	-0.050
	Middle	-0.373	-0.362	-0.066	-0.058	-0.441	-0.430	-0.073	-0.063
	Low	-0.352	-0.343	-0.081	-0.072	-0.407	-0.398	-0.087	-0.077
Age 3	High	-0.252	-0.241	-0.041	-0.036	-0.321	-0.308	-0.047	-0.041
	Middle	-0.236	-0.226	-0.055	-0.048	-0.293	-0.282	-0.061	-0.053
	Low	-0.252	-0.240	-0.070	-0.061	-0.297	-0.285	-0.076	-0.067
Black									
Age 1	High	-0.415	-0.403	-0.065	-0.057	-0.485	-0.473	-0.072	-0.062
	Middle	-0.390	-0.378	-0.080	-0.069	-0.449	-0.437	-0.086	-0.075
	Low	-0.400	-0.386	-0.093	-0.081	-0.448	-0.433	-0.098	-0.086
Age 2	High	-0.388	-0.373	-0.043	-0.038	-0.470	-0.454	-0.049	-0.043
	Middle	-0.336	-0.323	-0.057	-0.050	-0.407	-0.393	-0.064	-0.055
	Low	-0.312	-0.299	-0.072	-0.063	-0.369	-0.355	-0.079	-0.069
Age 3	High	-0.219	-0.207	-0.034	-0.029	-0.286	-0.272	-0.039	-0.033
	Middle	-0.201	-0.190	-0.046	-0.041	-0.256	-0.243	-0.052	-0.045
	Low	-0.215	-0.200	-0.061	-0.053	-0.257	-0.242	-0.067	-0.058
Asian									
Age 1	High	-0.321	-0.298	-0.068	-0.059	-0.380	-0.358	-0.074	-0.064
	Middle	-0.338	-0.318	-0.082	-0.072	-0.390	-0.367	-0.088	-0.078
	Low	-0.390	-0.366	-0.095	-0.083	-0.433	-0.409	-0.100	-0.088
Age 2	High	-0.263	-0.241	-0.046	-0.039	-0.331	-0.306	-0.052	-0.044
	Middle	-0.255	-0.236	-0.060	-0.051	-0.312	-0.289	-0.066	-0.058
	Low	-0.281	-0.259	-0.075	-0.065	-0.325	-0.303	-0.081	-0.071
Age 3	High	-0.147	-0.132	-0.036	-0.030	-0.192	-0.174	-0.041	-0.035
	Middle	-0.167	-0.150	-0.049	-0.042	-0.204	-0.185	-0.055	-0.047
	Low	-0.210	-0.189	-0.063	-0.055	-0.243	-0.221	-0.070	-0.060
Hispanic									
Age 1	High	-0.309	-0.298	-0.065	-0.057	-0.372	-0.360	-0.072	-0.062
	Middle	-0.323	-0.311	-0.080	-0.070	-0.375	-0.362	-0.086	-0.075
	Low	-0.370	-0.354	-0.093	-0.082	-0.411	-0.397	-0.098	-0.086
Age 2	High	-0.257	-0.245	-0.043	-0.038	-0.325	-0.312	-0.049	-0.043
	Middle	-0.245	-0.233	-0.057	-0.050	-0.302	-0.288	-0.064	-0.055
	Low	-0.264	-0.251	-0.072	-0.064	-0.309	-0.295	-0.079	-0.070
Age 3	High	-0.141	-0.131	-0.034	-0.029	-0.185	-0.174	-0.039	-0.034
	Middle	-0.156	-0.144	-0.046	-0.040	-0.192	-0.180	-0.052	-0.045
	Low	-0.193	-0.180	-0.061	-0.053	-0.226	-0.212	-0.067	-0.059

Table B.50: Nonparametric CATE of Education on Smoking

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.39	-0.37	0.29	0.35	-0.41	-0.38	0.26	0.33
	Middle	-0.27	-0.25	0.38	0.47	-0.30	-0.28	0.35	0.42
	Low	-0.14	-0.12	0.33	0.52	-0.20	-0.18	0.32	0.43
Age 2	High	-0.41	-0.39	0.15	0.21	-0.41	-0.38	0.19	0.25
	Middle	-0.28	-0.26	0.17	0.24	-0.33	-0.31	0.20	0.27
	Low	-0.15	-0.14	0.32	0.42	-0.20	-0.19	0.21	0.29
Age 3	High	-0.41	-0.38	0.10	0.14	-0.45	-0.41	0.06	0.12
	Middle	-0.28	-0.25	0.06	0.11	-0.35	-0.32	0.04	0.09
	Low	-0.16	-0.14	0.01	0.07	-0.18	-0.16	0.02	0.08
Black									
Age 1	High	-0.35	-0.32	0.17	0.24	-0.48	-0.42	0.12	0.24
	Middle	-0.18	-0.15	0.35	0.54	-0.35	-0.31	0.13	0.29
	Low	-0.12	-0.09	0.25	0.92	-0.17	-0.13	0.28	0.65
Age 2	High	-0.46	-0.43	0.05	0.11	-0.51	-0.46	0.07	0.17
	Middle	-0.34	-0.30	0.04	0.13	-0.45	-0.40	0.01	0.14
	Low	-0.19	-0.16	-0.12	-0.09	-0.32	-0.27	-0.01	0.20
Age 3	High	-0.63	-0.59	0.03	0.08	-0.52	-0.46	0.16	0.26
	Middle	-0.52	-0.44	-0.16	-0.09	-0.52	-0.43	0.00	0.11
	Low	-0.39	-0.30	0.00	0.14	-0.32	-0.23	-0.06	-0.02
Asian									
Age 1	High	-0.32	-0.24	0.06	0.23	-0.39	-0.28	-0.03	0.33
	Middle	-0.09	-0.05	0.31	0.98	-0.18	-0.12	0.55	0.93
	Low								
Age 2	High	-0.40	-0.27	0.00	0.00	-0.58	-0.45	0.10	0.33
	Middle	-0.33	-0.24	0.09	0.25	-0.25	-0.18	0.09	0.44
	Low	-0.15	-0.10	0.14	0.35	-0.16	-0.11	-0.08	-0.04
Age 3	High	-0.73	-0.60	0.00	0.00	-0.39	-0.22	0.31	0.88
	Middle	-0.50	-0.33	0.00	0.00	-0.22	-0.11	0.33	1.00
	Low	-0.25	-0.15	0.00	0.00	-0.08	-0.03	0.97	1.00
Hispanic									
Age 1	High	-0.57	-0.54	0.00	0.03	-0.62	-0.59	-0.05	0.00
	Middle	-0.41	-0.37	-0.01	0.04	-0.46	-0.43	0.07	0.12
	Low	-0.18	-0.14	-0.02	0.09	-0.26	-0.21	0.14	0.25
Age 2	High	-0.67	-0.64	0.01	0.06	-0.61	-0.57	0.04	0.12
	Middle	-0.54	-0.50	-0.05	0.00	-0.52	-0.47	0.06	0.15
	Low	-0.32	-0.27	-0.06	0.00	-0.31	-0.26	-0.01	0.08
Age 3	High	-0.78	-0.74	0.08	0.12	-0.86	-0.81	-0.01	0.12
	Middle	-0.74	-0.65	0.00	0.13	-0.58	-0.47	0.15	0.29
	Low	-0.45	-0.33	-0.03	0.00	-0.53	-0.40	0.10	0.25

Table B.51: Nonparametric CATE of Education on Exercising

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.524	-0.500	-0.053	0.003	-0.480	-0.450	-0.002	0.070
	Middle	-0.443	-0.419	0.071	0.167	-0.434	-0.409	-0.003	0.073
	Low	-0.411	-0.390	0.012	0.210	-0.370	-0.348	0.053	0.165
Age 2	High	-0.493	-0.465	0.100	0.155	-0.499	-0.468	0.085	0.146
	Middle	-0.460	-0.437	0.081	0.154	-0.418	-0.390	0.113	0.188
	Low	-0.421	-0.407	0.076	0.174	-0.391	-0.374	0.015	0.096
Age 3	High	-0.500	-0.473	0.094	0.142	-0.459	-0.424	0.159	0.230
	Middle	-0.518	-0.489	0.025	0.091	-0.466	-0.433	0.087	0.163
	Low	-0.456	-0.429	0.140	0.252	-0.452	-0.423	-0.070	0.020
Black									
Age 1	High	-0.476	-0.449	0.171	0.235	-0.539	-0.486	0.034	0.141
	Middle	-0.492	-0.448	0.031	0.215	-0.427	-0.378	0.047	0.201
	Low								
Age 2	High	-0.526	-0.491	0.087	0.158	-0.507	-0.459	0.104	0.207
	Middle	-0.547	-0.500	0.070	0.189	-0.419	-0.366	0.229	0.368
	Low	-0.498	-0.447	0.055	0.309	-0.450	-0.396	0.001	0.248
Age 3	High	-0.489	-0.447	0.022	0.104	-0.505	-0.446	0.065	0.173
	Middle	-0.578	-0.500	0.132	0.293	-0.519	-0.418	0.171	0.359
	Low	-0.526	-0.421	0.300	0.492	-0.491	-0.386	0.374	0.608
Asian									
Age 1	High	-0.611	-0.514	0.091	0.341				
	Middle								
	Low								
Age 2	High	-0.633	-0.467	-0.034	0.331	-0.600	-0.475	0.050	0.313
	Middle	-0.567	-0.463	0.049	0.287				
	Low	-0.484	-0.414	-0.129	0.105				
Age 3	High	-0.802	-0.667	-0.306	0.000				
	Middle								
	Low								
Hispanic									
Age 1	High	-0.476	-0.453	0.080	0.126	-0.503	-0.476	0.048	0.102
	Middle	-0.513	-0.474	0.069	0.146	-0.490	-0.454	0.079	0.154
	Low	-0.538	-0.483	-0.117	0.092	-0.430	-0.379	0.122	0.258
Age 2	High	-0.453	-0.417	0.058	0.134	-0.479	-0.439	0.073	0.166
	Middle	-0.538	-0.494	0.018	0.112	-0.550	-0.498	0.004	0.097
	Low	-0.475	-0.419	0.118	0.255	-0.389	-0.333	0.226	0.360
Age 3	High	-0.426	-0.375	0.005	0.123	-0.539	-0.473	0.031	0.249
	Middle	-0.525	-0.438	0.065	0.262	-0.667	-0.561	-0.114	0.117
	Low	-0.595	-0.476	0.098	0.382	-0.660	-0.553	-0.156	0.064

Table B.52: Nonparametric CATE of Education on BMI

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.46	-0.43	0.01	0.06	-0.45	-0.42	0.00	0.06
	Middle	-0.33	-0.31	0.01	0.09	-0.40	-0.38	-0.03	0.04
	Low	-0.18	-0.17	0.14	0.33	-0.27	-0.25	0.17	0.30
Age 2	High	-0.45	-0.43	0.07	0.13	-0.45	-0.42	0.06	0.13
	Middle	-0.40	-0.38	0.06	0.13	-0.37	-0.35	0.08	0.16
	Low	-0.29	-0.28	0.07	0.16	-0.32	-0.31	0.07	0.15
Age 3	High	-0.48	-0.46	0.01	0.05	-0.48	-0.45	0.01	0.08
	Middle	-0.35	-0.32	0.14	0.21	-0.43	-0.40	-0.02	0.04
	Low	-0.28	-0.25	0.08	0.18	-0.29	-0.26	0.08	0.17
Black									
Age 1	High	-0.50	-0.47	0.05	0.12	-0.44	-0.39	0.07	0.17
	Middle	-0.51	-0.46	0.21	0.40	-0.45	-0.41	0.01	0.17
	Low	-0.40	-0.34	-0.33	-0.28	-0.43	-0.37	-0.16	0.21
Age 2	High	-0.51	-0.47	0.06	0.13	-0.50	-0.45	0.00	0.08
	Middle	-0.53	-0.49	0.09	0.20	-0.48	-0.43	-0.10	0.03
	Low	-0.52	-0.47	0.03	0.30	-0.43	-0.38	-0.05	0.18
Age 3	High	-0.63	-0.59	-0.11	-0.02	-0.60	-0.54	-0.02	0.09
	Middle	-0.57	-0.49	-0.03	0.14	-0.63	-0.54	-0.16	0.01
	Low	-0.53	-0.42	0.04	0.27	-0.47	-0.37	0.40	0.63
Asian									
Age 1	High	-0.33	-0.25	-0.07	-0.02	-0.26	-0.17	0.09	0.44
	Middle	-0.15	-0.09	-0.06	-0.02	-0.21	-0.13	-0.10	-0.05
	Low								
Age 2	High	-0.47	-0.33	-0.09	0.00	-0.65	-0.53	-0.05	0.00
	Middle	-0.42	-0.33	-0.07	0.06	-0.29	-0.20	-0.11	-0.04
	Low	-0.20	-0.15	-0.06	-0.03	-0.16	-0.11	-0.08	-0.04
Age 3	High	-0.70	-0.57	0.03	0.21	-0.22	-0.11	0.00	0.00
	Middle	-0.39	-0.22	0.33	0.71	-0.39	-0.22	-0.07	0.00
	Low	-0.25	-0.15	0.00	0.00	-0.24	-0.14	-0.09	0.00
Hispanic									
Age 1	High	-0.53	-0.50	0.02	0.06	-0.57	-0.54	0.00	0.05
	Middle	-0.46	-0.42	0.06	0.14	-0.54	-0.50	-0.05	0.02
	Low	-0.35	-0.29	0.03	0.24	-0.41	-0.35	0.16	0.30
Age 2	High	-0.55	-0.51	0.01	0.09	-0.57	-0.53	0.04	0.12
	Middle	-0.57	-0.53	-0.06	0.03	-0.54	-0.49	0.03	0.13
	Low	-0.36	-0.30	0.32	0.45	-0.45	-0.39	0.16	0.30
Age 3	High	-0.68	-0.63	-0.13	-0.01	-0.73	-0.67	-0.09	0.10
	Middle	-0.63	-0.54	0.11	0.27	-0.58	-0.47	0.10	0.30
	Low	-0.57	-0.45	-0.04	0.22	-0.62	-0.51	-0.05	0.19

Table B.53: Nonparametric CATE of Education on Diabetes

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.28	-0.25	0.01	0.03	-0.31	-0.29	0.02	0.06
	Middle	-0.12	-0.10	0.00	0.03	-0.16	-0.14	0.00	0.02
	Low	-0.03	-0.02	0.14	0.28	-0.06	-0.05	0.06	0.13
Age 2	High	-0.35	-0.32	0.09	0.14	-0.38	-0.35	0.04	0.08
	Middle	-0.19	-0.18	0.01	0.05	-0.23	-0.21	0.08	0.13
	Low	-0.10	-0.09	0.06	0.13	-0.13	-0.12	0.02	0.07
Age 3	High	-0.44	-0.42	0.05	0.09	-0.45	-0.41	0.08	0.14
	Middle	-0.28	-0.25	0.09	0.14	-0.39	-0.36	0.03	0.09
	Low	-0.18	-0.15	0.02	0.10	-0.23	-0.21	0.11	0.20
Black									
Age 1	High	-0.30	-0.27	0.03	0.07	-0.31	-0.27	0.09	0.15
	Middle	-0.14	-0.11	-0.06	-0.04	-0.15	-0.12	0.10	0.21
	Low	-0.07	-0.05	0.30	0.96	-0.08	-0.05	-0.02	-0.01
Age 2	High	-0.40	-0.36	0.13	0.19	-0.47	-0.42	0.02	0.09
	Middle	-0.30	-0.26	0.09	0.20	-0.28	-0.23	0.10	0.21
	Low	-0.15	-0.12	0.16	0.40	-0.20	-0.15	-0.03	0.12
Age 3	High	-0.52	-0.47	0.14	0.23	-0.60	-0.54	-0.03	0.08
	Middle	-0.45	-0.37	0.10	0.25	-0.59	-0.51	-0.10	0.05
	Low	-0.58	-0.46	-0.18	0.02	-0.47	-0.37	0.00	0.28
Asian									
Age 1	High	-0.28	-0.19	0.00	0.00	-0.26	-0.17	-0.05	0.00
	Middle	-0.07	-0.03	0.00	0.00	-0.12	-0.07	-0.04	0.00
	Low								
Age 2	High	-0.43	-0.30	-0.05	0.00	-0.68	-0.55	-0.10	0.08
	Middle	-0.45	-0.36	-0.16	-0.08	-0.25	-0.18	-0.09	-0.02
	Low	-0.17	-0.13	0.11	0.30	-0.22	-0.16	-0.13	-0.07
Age 3	High	-0.67	-0.53	0.00	0.28	-0.22	-0.11	0.44	1.00
	Middle	-0.72	-0.50	-0.25	-0.07	-0.50	-0.33	0.07	0.71
	Low	-0.28	-0.18	0.25	0.61	-0.40	-0.27	-0.23	-0.11
Hispanic									
Age 1	High	-0.57	-0.55	-0.01	0.01	-0.62	-0.59	0.02	0.04
	Middle	-0.40	-0.36	-0.01	0.02	-0.49	-0.45	-0.02	0.00
	Low	-0.10	-0.07	0.05	0.16	-0.26	-0.21	0.03	0.11
Age 2	High	-0.62	-0.59	0.06	0.12	-0.62	-0.58	0.06	0.13
	Middle	-0.49	-0.44	0.07	0.14	-0.54	-0.49	0.03	0.10
	Low	-0.29	-0.24	0.09	0.20	-0.30	-0.25	-0.01	0.07
Age 3	High	-0.69	-0.65	-0.11	0.02	-0.71	-0.65	-0.07	0.15
	Middle	-0.63	-0.54	0.07	0.26	-0.65	-0.54	-0.06	0.16
	Low	-0.57	-0.45	-0.12	0.09	-0.62	-0.51	-0.09	0.10

Table B.54: Nonparametric CATE of Education on Excellent SRH

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.668	-0.645	0.063	0.108	-0.634	-0.604	0.079	0.131
	Middle	-0.700	-0.679	0.112	0.178	-0.654	-0.631	0.101	0.158
	Low	-0.645	-0.626	0.169	0.310	-0.644	-0.623	0.033	0.143
Age 2	High	-0.657	-0.631	0.099	0.126	-0.638	-0.607	0.089	0.122
	Middle	-0.760	-0.740	0.065	0.118	-0.718	-0.695	0.113	0.156
	Low	-0.717	-0.702	0.147	0.213	-0.712	-0.696	0.114	0.170
Age 3	High	-0.567	-0.541	0.059	0.087	-0.581	-0.545	0.052	0.098
	Middle	-0.730	-0.706	0.032	0.076	-0.678	-0.645	0.001	0.054
	Low	-0.761	-0.735	0.049	0.131	-0.748	-0.722	0.053	0.123
Black									
Age 1	High	-0.658	-0.630	0.058	0.100	-0.645	-0.599	0.033	0.117
	Middle	-0.807	-0.771	-0.211	-0.028	-0.698	-0.649	-0.108	0.048
	Low								
Age 2	High	-0.652	-0.621	0.020	0.050	-0.642	-0.591	-0.019	0.044
	Middle	-0.777	-0.739	0.061	0.115	-0.752	-0.707	0.034	0.132
	Low	-0.829	-0.789	0.016	0.190	-0.817	-0.771	-0.033	0.170
Age 3	High	-0.420	-0.375	0.042	0.094	-0.462	-0.402	0.076	0.148
	Middle	-0.716	-0.637	-0.044	0.077	-0.633	-0.544	0.040	0.160
	Low	-0.807	-0.702	-0.038	0.114	-0.772	-0.684	0.170	0.271
Asian									
Age 1	High	-0.764	-0.667	0.064	0.232				
	Middle								
	Low								
Age 2	High	-0.833	-0.700	0.045	0.136	-0.650	-0.525	-0.050	0.159
	Middle	-0.791	-0.701	-0.050	0.114				
	Low	-0.781	-0.719	-0.092	0.146				
Age 3	High	-0.567	-0.433	-0.028	0.167				
	Middle								
	Low								
Hispanic									
Age 1	High	-0.470	-0.445	0.045	0.083	-0.427	-0.399	0.081	0.130
	Middle	-0.573	-0.534	0.098	0.165	-0.548	-0.513	0.032	0.098
	Low	-0.686	-0.636	0.044	0.247	-0.607	-0.551	0.113	0.240
Age 2	High	-0.365	-0.331	0.014	0.061	-0.400	-0.358	0.045	0.111
	Middle	-0.535	-0.487	0.078	0.141	-0.565	-0.513	-0.033	0.045
	Low	-0.728	-0.673	0.093	0.178	-0.717	-0.662	0.021	0.135
Age 3	High	-0.253	-0.209	-0.012	0.031	-0.188	-0.145	0.154	0.339
	Middle	-0.388	-0.300	0.071	0.191	-0.544	-0.439	0.018	0.125
	Low	-0.786	-0.667	-0.050	0.138	-0.574	-0.447	0.174	0.335

Table B.55: Nonparametric CATE of Smoking on Excellent SRH

Female						Male			
Age group	income level	(L-)	L	U	(U+)	(L-)	L	U	(U+)
white									
Age 1	High	-0.537	-0.512	-0.091	-0.054	-0.544	-0.512	-0.075	-0.028
	Middle	-0.483	-0.460	-0.171	-0.129	-0.484	-0.459	-0.096	-0.050
	Low	-0.452	-0.431	-0.145	-0.090	-0.485	-0.465	-0.169	-0.121
Age 2	High	-0.474	-0.448	-0.098	-0.068	-0.475	-0.446	-0.050	-0.015
	Middle	-0.371	-0.349	-0.046	-0.007	-0.413	-0.388	-0.037	0.008
	Low	-0.382	-0.367	-0.121	-0.085	-0.399	-0.383	-0.100	-0.063
Age 3	High	-0.237	-0.214	-0.021	0.024	-0.302	-0.269	-0.034	0.025
	Middle	-0.235	-0.211	-0.012	0.046	-0.281	-0.250	-0.022	0.057
	Low	-0.297	-0.270	-0.040	0.042	-0.292	-0.266	0.012	0.093
Black									
Age 1	High	-0.391	-0.365	-0.023	0.028	-0.574	-0.525	-0.120	-0.033
	Middle	-0.345	-0.307	-0.016	0.091	-0.510	-0.462	-0.079	0.014
	Low	-0.380	-0.324	-0.009	0.190	-0.512	-0.448	-0.135	0.030
Age 2	High	-0.394	-0.360	-0.009	0.027	-0.537	-0.486	0.006	0.065
	Middle	-0.280	-0.242	0.066	0.148	-0.500	-0.443	-0.078	0.001
	Low	-0.335	-0.287	-0.169	-0.095	-0.438	-0.383	-0.105	-0.012
Age 3	High	-0.192	-0.162	-0.017	0.072	-0.386	-0.326	-0.068	-0.017
	Middle	-0.304	-0.235	-0.063	0.115	-0.253	-0.177	0.032	0.279
	Low	-0.211	-0.140	0.156	0.593	-0.193	-0.123	0.556	0.927
Asian									
Age 1	High	-0.389	-0.292	-0.215	-0.136	-0.500	-0.391	-0.243	-0.128
	Middle	-0.402	-0.322	-0.298	-0.217	-0.476	-0.390	0.088	0.377
	Low	-0.370	-0.305	-0.043	0.338	-0.470	-0.405	-0.091	0.084
Age 2	High					-0.400	-0.275	0.233	0.507
	Middle	-0.269	-0.179	0.107	0.589	-0.510	-0.392	-0.311	-0.200
	Low	-0.336	-0.273	-0.052	0.279	-0.371	-0.302	-0.243	-0.178
Age 3	High					-0.556	-0.389	-0.214	-0.063
	Middle					-0.167	-0.056	0.000	0.000
	Low					-0.351	-0.243	-0.176	-0.083
Hispanic									
Age 1	High	-0.253	-0.233	-0.051	0.011	-0.378	-0.351	-0.023	0.031
	Middle	-0.325	-0.289	-0.043	0.079	-0.397	-0.365	-0.031	0.051
	Low	-0.411	-0.360	-0.002	0.193	-0.467	-0.411	-0.111	0.065
Age 2	High	-0.237	-0.209	0.001	0.057	-0.368	-0.329	-0.004	0.068
	Middle	-0.236	-0.201	0.023	0.125	-0.335	-0.290	0.041	0.147
	Low	-0.286	-0.240	-0.031	0.106	-0.374	-0.318	-0.153	-0.036
Age 3	High	-0.126	-0.097	-0.031	-0.015	-0.236	-0.188	-0.095	-0.057
	Middle	-0.250	-0.175	0.029	0.204	-0.246	-0.158	0.083	0.362
	Low	-0.238	-0.143	-0.122	-0.049	-0.340	-0.234	0.064	0.530

APPENDIX C

APPENDIX FOR CHAPTER 4

Table C.1: Descriptive Statistics By Gender-Control Group Not Limited to Good Health

Variable		N	Ave	N	Ave	N	Ave
		All		Male		Female	
FULLTIME	Yes	2650	0.73	1659	0.84	991	0.60
SELFEMP2	Yes	434	0.12	268	0.14	166	0.10
OCCUP	Professional	678	0.19	348	0.18	330	0.20
	Managerial	502	0.14	308	0.16	194	0.12
	Sales	229	0.06	107	0.05	122	0.07
	Clerical	673	0.18	138	0.07	535	0.32
	Technician	846	0.23	703	0.35	143	0.09
	Laborer/Service	712	0.20	379	0.19	333	0.20
JOBZONE	Zone 1	275	0.08	161	0.08	114	0.07
	Zone 2	1388	0.38	740	0.37	648	0.39
	Zone 3	945	0.26	480	0.24	465	0.28
	Zone 4	893	0.25	524	0.26	369	0.22
	Zone 5	139	0.04	78	0.04	61	0.04
AGE		3640	33.46	1983	33.28	1657	33.67
EDUC		3640	13.37	1983	13.29	1657	13.46
SEXF	Yes	1657	0.45				
LRF		3640	0.97	1983	0.98	1657	0.95
EMPW		3640	0.95	1983	0.96	1657	0.94
DEPEO	Yes	337	0.09	129	0.07	208	0.13
DEPEPS		3640	2.27	1983	2.59	1657	1.89
DEPEOA		337	15.62	129	15.32	208	15.81
DEPREC		337	2.87	129	2.93	208	2.83
ALCDLT		3640	0.22	1983	0.29	1657	0.12
DRGDLT		3640	0.11	1983	0.13	1657	0.08
GADLT1		3640	0.06	1983	0.05	1657	0.07
R4EG	Northeast	742	0.21	387	0.20	355	0.21
	Midwest	968	0.27	552	0.28	416	0.25
	South	1155	0.32	617	0.31	538	0.32
	West	775	0.21	427	0.22	348	0.21
MARSTAT	COHAB	2037	0.56	1103	0.57	934	0.56
RACE	White	2890	0.79	1596	0.80	1294	0.78
	Black	372	0.10	176	0.09	196	0.12
	Hispanic	269	0.07	156	0.08	113	0.07
N		3640	100	1983	100	1657	100

Table C.2: Marginal Effect of Early-Onset Depression on Working Full-Time

(a) Limited							(b) Unlimited						
NCS1	dy/dx	z	dy/dx	z	dy/dx	z	NCS1	dy/dx	z	dy/dx	z	dy/dx	z
limited	All		Male		Female		Unlimited	All		Male		Female	
EDUC	0.0114	3.11	0.0026	0.73	0.020202	3.2	EDUC	0.0114	3.28	0.0029	0.86	0.0202	3.34
SEXF	-0.2421	15.4					SEXF	-0.2380	-15.68				
DEPEO	0.0489	1.95	0.0189	0.61	0.0740	1.85	DEPEO	0.0426	1.76	0.0172	0.58	0.0610	1.60
COHAB	0.1067	6.74	0.1935	10.97	-0.0116	-0.44	COHAB	0.1163	7.62	0.1964	11.47	0.0059	0.23
BLACK	0.0021	0.08	-0.0139	-0.51	0.0037	0.09	BLACK	-0.0027	-0.11	-0.0149	-0.57	-0.0024	-0.06
HISPANIC	0.0245	0.84	0.0082	0.29	0.0243	0.47	HISPANIC	0.0176	0.63	0.0137	0.51	0.0025	0.05
ALCDLT	0.0443	2.22	0.0511	3.07	0.0009	0.02	ALCDLT	0.0511	2.68	0.0519	3.24	0.0189	0.48
DRGDLT	-0.0089	-0.32	-0.0091	-0.35	-0.0244	-0.48	DRGDLT	-0.0050	-0.19	-0.0054	-0.21	-0.0169	-0.35
GADLT1	0.0169	0.49	0.0091	0.25	0.0381	0.69	GADLT1	0.0169	0.53	0.0041	0.11	0.0453	0.90
Midwest	0.0254	1.19	0.0183	0.84	0.0435	1.22	Midwest	0.0279	1.35	0.0188	0.88	0.0499	1.45
West	0.0111	0.48	-0.0043	-0.18	0.0439	1.16	West	0.0079	0.35	-0.0052	-0.22	0.0409	1.12
South	0.0456	2.22	0.0107	0.49	0.0790	2.31	South	0.0466	2.36	0.0106	0.50	0.0840	2.57
EDUC	0.0126	0.98	0.0094	0.71	0.0158	0.82	EDUC	0.0122	1.02	-0.0059	-0.41	0.0243	1.37
SEXF	-0.1789	-3.66					SEXF	-0.1764	-3.81				
DEPEOA	0.0058	0.92	0.0132	2.17	-0.0014	-0.15	DEPEOA	0.0036	0.63	0.0099	1.55	-0.0010	-0.12
COHAB	-0.0715	-1.39	0.0428	0.70	-0.1500	-2.09	COHAB	-0.0470	-0.97	0.0182	0.29	-0.1028	-1.51
BLACK	-0.0221	-0.22	-0.0477	-0.30	-0.0119	-0.09	BLACK	-0.0705	-0.70	-0.0347	-0.22	-0.0942	-0.72
HISPANIC	-0.0085	-0.07	-0.0498	-0.38	0.0692	0.41	HISPANIC	-0.0965	-0.87	-0.2007	-1.14	-0.0371	-0.24
ALCDLT	0.0011	0.02	-0.0749	-0.99	0.0435	0.53	ALCDLT	0.0405	0.73	-0.0353	-0.50	0.0958	1.24
DRGDLT	0.0470	0.73	0.0737	1.17	0.0262	0.26	DRGDLT	0.0562	0.91	0.0243	0.34	0.0839	0.91
GADLT1	-0.0550	-0.86	-0.1397	-1.44	-0.0052	-0.06	GADLT1	-0.0324	-0.56	-0.0641	-0.81	-0.0030	-0.04
Midwest	0.0987	1.64	0.0813	1.47	0.1171	1.30	Midwest	0.1026	1.76	0.0667	1.05	0.1379	1.62
West	0.1038	1.68	0.1176	1.98	0.0996	1.04	West	0.0929	1.56	0.1127	1.86	0.0703	0.76
South	0.1313	2.27	0.0754	1.28	0.1577	1.76	South	0.1410	2.56	0.0625	0.93	0.1801	2.21
EDUC	0.0117	3.20	0.00272	0.76	0.021162	3.35	EDUC	0.0116	3.34	0.0030	0.87	0.0209	3.46
SEXF	-0.2394	15.34					SEXF	-0.2351	-15.62				
DEPEPS	-0.0013	-1.66	-0.0014	-2.33	0.0017	0.89	DEPEPS	-0.0010	-1.80	-0.0010	-2.14	0.0001	0.07
COHAB	0.1046	6.61	0.1906	10.8	-0.0135	-0.52	COHAB	0.1148	7.54	0.1941	11.34	0.0041	0.16
BLACK	0.0013	0.05	-0.0163	-0.59	0.0034	0.08	BLACK	-0.0033	-0.14	-0.0166	-0.64	-0.0030	-0.08
HISPANIC	0.0254	0.88	0.0101	0.36	0.0226	0.44	HISPANIC	0.0183	0.66	0.0151	0.57	0.0019	0.04
ALCDLT	0.0501	2.53	0.0538	3.24	0.0075	0.19	ALCDLT	0.0567	2.99	0.0543	3.41	0.0272	0.70
DRGDLT	0.0007	0.02	0.0006	0.02	-0.0201	-0.4	DRGDLT	0.0037	0.14	0.0028	0.11	-0.0108	-0.22
GADLT1	0.037111	1.17	0.0264	0.80	0.0602	1.16	GADLT1	0.0367	1.24	0.0195	0.61	0.0665	1.40
Midwest	0.0257	1.20	0.0188	0.86	0.0450	1.26	Midwest	0.0278	1.34	0.0181	0.85	0.0507	1.47
West	0.0122	0.53	-0.0037	-0.15	0.0452	1.19	West	0.0084	0.38	-0.0066	-0.28	0.0421	1.15
South	0.0450	2.19	0.0122	0.56	0.0777	2.27	South	0.0460	2.32	0.0106	0.50	0.0834	2.55
EDUC	0.0093	0.73	0.0061	0.46	0.0129	0.66	EDUC	0.0093	0.78	-0.0087	-0.70	0.0227	1.28
SEXF	-0.1710	-3.51					SEXF	-0.1715	-3.71				
DEPREC	0.0490	2.27	0.0512	2.22	0.0310	0.97	DEPREC	0.0437	2.19	0.0654	3.04	0.0181	0.63
COHAB	-0.0841	-1.63	0.0142	0.23	-0.1561	-2.16	COHAB	-0.0610	-1.25	-0.0104	-0.18	-0.1074	-1.57
BLACK	0.0215	0.23	-0.0356	-0.24	0.0235	0.18	BLACK	-0.0382	-0.40	-0.0013	-0.01	-0.0806	-0.62
HISPANIC	0.0274	0.26	-0.0108	-0.10	0.0883	0.55	HISPANIC	-0.0654	-0.61	-0.1184	-0.81	-0.0282	-0.18
ALCDLT	-0.0014	-0.02	-0.0577	-0.79	0.0454	0.55	ALCDLT	0.0412	0.74	-0.0205	-0.31	0.0970	1.26
DRGDLT	0.0532	0.84	0.0412	0.59	0.0407	0.4	DRGDLT	0.0588	0.96	-0.0139	-0.19	0.0900	0.98
GADLT1	-0.0259	-0.41	-0.0640	-0.79	0.0119	0.14	GADLT1	-0.0138	-0.24	-0.0107	-0.17	0.0049	0.06
Midwest	0.1019	1.73	0.0840	1.52	0.1132	1.26	Midwest	0.1069	1.88	0.0769	1.40	0.1359	1.61
West	0.1098	1.81	0.1028	1.69	0.1061	1.11	West	0.0964	1.64	0.0979	1.69	0.0733	0.80
South	0.1515	2.74	0.0976	1.77	0.1695	1.91	South	0.1613	3.01	0.0917	1.59	0.1878	2.30

Table C.3: Marginal Effect of Early-Onset Depression on Probability of Self-Employment

(a) Limited							(b) Unlimited						
NCS1	dy/dx	z	dy/dx	z	dy/dx	z	NCS1	dy/dx	z	dy/dx	z	dy/dx	z
Limited	All		Male		Female		Unlimited	All		Male		Female	
EDUC	-0.0008	-0.32	-0.0005	-0.15	-0.0006	-0.18	EDUC	-0.0012	-0.49	-0.0010	-0.29	-0.0011	-0.32
SEXF	-0.0394	-3.64					SEXF	-0.0368	-3.48				
DEPEO	0.0662	2.78	0.0647	1.75	0.0636	2.18	DEPEO	0.0492	2.26	0.0451	1.33	0.0516	1.92
COHAB	0.0525	4.93	0.0596	3.88	0.0442	3.06	COHAB	0.0462	4.45	0.0501	3.36	0.0425	3.01
BLACK	-0.0350	-2.12	-0.0439	-1.81	-0.0242	-1.11	BLACK	-0.0468	-3.09	-0.0553	-2.49	-0.0361	-1.82
HISPANIC	-0.0366	-2.08	-0.0390	-1.56	-0.0330	-1.33	HISPANIC	-0.0400	-2.43	-0.0458	-1.97	-0.0301	-1.27
ALCDLT	-0.0111	-0.86	-0.0139	-0.80	-0.0112	-0.56	ALCDLT	-0.0106	-0.84	-0.0122	-0.73	-0.0147	-0.75
DRGDLT	0.0428	2.09	0.0436	1.63	0.0438	1.32	DRGDLT	0.0359	1.84	0.0393	1.54	0.0316	1.01
GADLT1	0.0131	0.54	0.0824	1.83	-0.0385	-1.76	GADLT1	0.0156	0.67	0.0895	2.05	-0.0369	-1.74
Midwest	-0.0172	-1.19	-0.0152	-0.68	-0.0162	-0.91	Midwest	-0.0275	-2.01	-0.0261	-1.24	-0.0257	-1.53
West	0.0051	0.32	0.0176	0.70	-0.0058	-0.30	West	0.0085	0.54	0.0233	0.95	-0.0043	-0.23
South	-0.0091	-0.62	0.0261	1.10	-0.0449	-2.6	South	-0.0155	-1.11	0.0211	0.94	-0.0522	-3.16
EDUC	0.0040	0.35	0.0130	0.66	-0.00671	-0.49	EDUC	0.0024	0.24	0.0039	0.22	-0.0040	-0.32
SEXF	-0.0657	-1.39					SEXF	-0.0659	-1.51				
DEPEOA	0.0018	0.32	0.0116	1.18	-0.0070	-1.09	DEPEOA	-0.0012	-0.25	0.0087	0.99	-0.0081	-1.54
COHAB	-0.0017	-0.04	-0.0249	-0.32	0.0289	0.58	COHAB	-0.0084	-0.21	-0.0544	-0.73	0.0296	0.65
BLACK	-0.0922	-1.42	-0.0420	-0.25	-0.1023	-2.04	BLACK	-0.0942	-1.68	-0.0801	-0.63	-0.0934	-1.92
HISPANIC	-0.0797	-1.12	-0.1371	-1.43	-0.0581	-0.72	HISPANIC	-0.0437	-0.63	-0.1405	-1.71	0.0290	0.28
ALCDLT	-0.0147	-0.30	0.0227	0.25	-0.0676	-1.35	ALCDLT	-0.0214	-0.47	0.0318	0.38	-0.0693	-1.51
DRGDLT	0.0361	0.60	0.0571	0.55	0.0147	0.20	DRGDLT	0.0172	0.32	0.0137	0.15	0.0161	0.23
GADLT1	-0.0200	-0.39	0.0936	0.93	-0.1119	-2.51	GADLT1	-0.0333	-0.76	0.0430	0.50	-0.0964	-2.31
Midwest	0.0075	0.11	-0.0550	-0.50	0.0390	0.49	Midwest	-0.0029	-0.05	-0.0664	-0.67	0.0239	0.34
West	0.0287	0.42	0.0205	0.19	0.0041	0.05	West	0.0241	0.40	0.0318	0.30	-0.0100	-0.15
South	0.0154	0.22	-0.0661	-0.63	0.0817	0.89	South	-0.0117	-0.20	-0.0694	-0.71	0.0113	0.17
EDUC	-0.0003	-0.13	-0.0001	-0.04	2.8E-05	0.01	EDUC	-0.0008	-0.32	-0.0007	-0.22	-0.0003	-0.08
SEXF	-0.0355	-3.27					SEXF	-0.0336	-3.19				
DEPEPS	0.0001	0.22	-0.0003	-0.38	0.0005	0.64	DEPEPS	0.0003	0.90	-0.0002	-0.44	0.0008	1.82
COHAB	0.0516	4.81	0.0585	3.79	0.0427	2.91	COHAB	0.0457	4.39	0.0492	3.30	0.0405	2.85
BLACK	-0.0356	-2.15	-0.0451	-1.87	-0.0241	-1.09	BLACK	-0.0473	-3.12	-0.0561	-2.54	-0.0372	-1.88
HISPANIC	-0.0371	-2.09	-0.0385	-1.52	-0.0343	-1.38	HISPANIC	-0.0402	-2.43	-0.0453	-1.94	-0.0308	-1.30
ALCDLT	-0.0087	-0.66	-0.0128	-0.73	-0.0047	-0.22	ALCDLT	-0.0093	-0.72	-0.0108	-0.64	-0.0123	-0.61
DRGDLT	0.0497	2.35	0.0512	1.86	0.0500	1.45	DRGDLT	0.0394	1.99	0.0451	1.73	0.0343	1.08
GADLT1	0.0314	1.18	0.1066	2.21	-0.0256	-1.00	GADLT1	0.0285	1.16	0.1107	2.41	-0.0274	-1.18
Midwest	-0.0169	-1.15	-0.0154	-0.69	-0.0154	-0.85	Midwest	-0.0271	-1.97	-0.0262	-1.24	-0.0252	-1.48
West	0.0071	0.43	0.0201	0.79	-0.0043	-0.22	West	0.0101	0.64	0.0248	1.00	-0.0034	-0.18
South	-0.0091	-0.61	0.0270	1.13	-0.0463	-2.66	South	-0.0148	-1.05	0.0221	0.98	-0.0524	-3.15
EDUC	0.0044	0.38	0.0150	0.74	-0.0078	-0.57	EDUC	0.0017	0.17	0.0077	0.43	-0.0062	-0.50
SEXF	-0.0646	-1.36					SEXF	-0.0659	-1.51				
DEPREC	0.0006	0.03	0.0048	0.14	-0.0025	-0.11	DEPREC	0.0025	0.15	0.0026	0.08	0.0027	0.14
COHAB	-0.0009	-0.02	-0.0171	-0.21	0.0288	0.57	COHAB	-0.0103	-0.25	-0.0427	-0.56	0.0258	0.55
BLACK	-0.0924	-1.41	-0.0387	-0.23	-0.1037	-1.99	BLACK	-0.0935	-1.64	-0.0730	-0.55	-0.0958	-1.90
HISPANIC	-0.0782	-1.08	-0.1194	-1.08	-0.0597	-0.73	HISPANIC	-0.0438	-0.63	-0.1279	-1.39	0.0260	0.25
ALCDLT	-0.0147	-0.30	0.0409	0.45	-0.0594	-1.16	ALCDLT	-0.0213	-0.47	0.0409	0.49	-0.0632	-1.33
DRGDLT	0.0339	0.57	0.0336	0.33	0.0201	0.27	DRGDLT	0.0184	0.34	0.0013	0.01	0.0224	0.31
GADLT1	-0.0195	-0.38	0.1068	1.00	-0.1102	-2.40	GADLT1	-0.0318	-0.71	0.0469	0.53	-0.0920	-2.09
Midwest	0.0096	0.14	-0.0418	-0.37	0.0322	0.41	Midwest	-0.0044	-0.07	-0.0531	-0.52	0.0131	0.19
West	0.0289	0.43	0.0276	0.25	0.0061	0.08	West	0.0242	0.40	0.0425	0.40	-0.0048	-0.07
South	0.0162	0.23	-0.0567	-0.52	0.0806	0.86	South	-0.0108	-0.18	-0.0590	-0.59	0.0140	0.20

Table C.4: Marginal Effect of Early-Onset Depression on Labor Force Participation

(a) Limited							(b) Unlimited						
NCS1	dy/dx	z	dy/dx	z	dy/dx	z	NCS1	dy/dx	z	dy/dx	z	dy/dx	z
Limited	All		Male		Female		Unlimited	All		Male		Female	
EDUC	0.0004	0.35	-0.0004	-0.88	0.0032	1.22	EDUC	0.0003	0.28	-0.0004	-0.97	0.0030	1.20
SEXF	-0.0206	-3.63					SEXF	-0.0203	-3.74				
DEPEO	-0.0007	-0.07	-0.0005	-0.11	-0.0009	-0.05	DEPEO	0.0019	0.24	-0.0002	-0.05	0.0030	0.18
COHAB	0.0275	4.67	0.0317	4.30	0.0149	1.34	COHAB	0.0242	4.41	0.0302	4.29	0.0083	0.80
BLACK	0.0158	3.02	0.0056	2.20	0.0140	0.98	BLACK	0.0168	3.48	0.0051	2.21	0.0164	1.25
HISPANIC	0.0060	0.73	0.0031	1.27	-0.0023	-0.10	HISPANIC	0.0084	1.15	0.0030	1.43	0.0039	0.20
ALCDLT	0.0160	2.79	0.0045	1.80	0.0206	1.52	ALCDLT	0.0168	3.08	0.0044	1.89	0.0215	1.67
DRGDLT	0.0089	1.07	0.0047	1.69	-0.0011	-0.05	DRGDLT	0.0087	1.07	0.0042	1.68	-0.0010	
GADLT1	0.0107	1.24	0.0034	1.23	0.0171	0.92	GADLT1	0.0123	1.60	0.0033	1.42	0.0215	1.34
Midwest	-0.0037	-0.51	0.0013	0.51	-0.0132	-0.82	Midwest	-0.0023	-0.34	0.0018	0.85	-0.0119	-0.78
West	0.0107	1.63	0.0038	1.46	0.0148	1.02	West	0.0107	1.71	0.0038	1.66	0.0139	1.00
South	-0.0021	-0.31	-0.0033	-1.01	0.0082	0.59	South	-0.0016	-0.24	-0.0023	-0.89	0.0077	0.58
EDUC	0.0001	6.5E-04	-2.9E-05	-9.3E-04	0.0014	1.8E-03	EDUC	0.0001	0.34	-4.7E-05	-0.13	0.0008	5.8E-04
SEXF	-0.0010	-6.5E-04					SEXF	-0.0009	-1.29				
DEPEOA	-4.2E-05	-6.5E-04	-7.76E-06	-9.3E-04	-0.0004	-1.8E-03	DEPEOA	-0.0001	-0.73	-0.0001	-0.32	-0.0003	-5.8E-04
COHAB	-0.0011	-6.5E-04					COHAB	-0.0010	-1.36				
ALCDLT	0.0002	6.46E-04	0.0003	9.3E-04	0.0037	1.8E-03	ALCDLT	0.0002	0.33	0.0004	0.22	0.0023	5.8E-04
DRGDLT	-0.0009	-6.5E-04	0.0001	9.3E-04	-0.0114	1.8E-03	DRGDLT	-0.0009	-0.75	-0.0001	-0.03	-0.0071	-5.8E-04
GADLT1	-0.0008	-6.5E-04	-0.0018	-9.3E-04	-0.0002	-1.8E-03	GADLT1	-0.0005	-0.63	-0.0007	-0.40	0.0001	5.8E-04
Midwest	-0.9938	-0.04	-0.9870	-0.05	-0.9856	-0.07	Midwest	-0.9959	-381.60	-0.9907	-117.30	-0.9920	-0.04
West	-0.9875	-0.02			-0.9872	-0.07	West	-0.9909	-210.70				
South	-0.9865	-0.02	-0.9448	-0.01			South	-0.9788	-43.29	-0.9398	-10.34	-0.9842	-0.02
EDUC	0.0004	0.34	-0.0004	-0.91	0.0031	1.20	EDUC	0.0003	0.27	-0.0004	-1.00	0.0030	1.22
SEXF	-0.0208	-3.72					SEXF	-0.0203	-3.78				
DEPEPS	-0.0004	-1.86	-0.0001	-1.02	-0.0006	-1.21	DEPEPS	-0.0002	-1.37	-0.0001	-1.36	0.0000	-0.03
COHAB	0.0268	4.60	0.0308	4.20	0.0147	1.33	COHAB	0.0239	4.37	0.0289	4.18	0.0082	0.79
BLACK	0.0155	2.98	0.0054	2.18	0.0139	0.98	BLACK	0.0167	3.46	0.0050	2.20	0.0164	1.25
HISPANIC	0.0060	0.73	0.0030	1.25	-0.0022	-0.10	HISPANIC	0.0083	1.13	0.0029	1.38	0.0038	0.20
ALCDLT	0.0165	2.94	0.0045	1.83	0.0221	1.69	ALCDLT	0.0172	3.21	0.0044	1.91	0.0218	1.71
DRGDLT	0.0103	1.32	0.0049	1.81	0.0006	0.03	DRGDLT	0.0096	1.24	0.0044	1.83	-0.0006	-0.03
GADLT1	0.0114	1.43	0.0037	1.46	0.0179	1.01	GADLT1	0.0135	1.92	0.0036	1.68	0.0222	1.44
Midwest	-0.0036	-0.50	0.0013	0.52	-0.0132	-0.82	Midwest	-0.0024	-0.36	0.0016	0.79	-0.0119	-0.78
West	0.0104	1.58	0.0036	1.42	0.0147	1.02	West	0.0104	1.67	0.0035	1.55	0.0139	1.00
South	-0.0020	-0.30	-0.0032	-1.01	0.0082	0.60	South	-0.0017	-0.27	-0.0025	-0.95	0.0077	0.58
EDUC	0.0001	1.6E-03	-0.0002	-8.7E-04			EDUC	3.6E-05	7.3E-04	-0.0002	-5.5E-04	0.0009	9.6E-04
SEXF	-0.0010	-1.6E-03					SEXF	-0.0009	-7.3E-04				
DEPREC	0.0002	1.6E-03	0.0008	8.7E-04			DEPREC	0.0002	7.3E-04	0.0006	5.5E-04	-0.0002	-9.6E-04
COHAB	-0.0012	-1.6E-03					COHAB	-0.0012	-7.3E-04				
ALCDLT	0.0003	1.6E-03	0.0007	8.7E-04			ALCDLT	0.0003	7.3E-04	0.0008	5.5E-04	0.0028	9.6E-04
DRGDLT	-0.0008	-1.6E-03	-0.0016	-8.7E-04			DRGDLT	-0.0008	-7.3E-04	-0.0009	-5.5E-04	-0.0058	-9.7E-04
GADLT1	-0.0008	1.6E-03	-0.0005	-8.7E-04			GADLT1	-0.0005	7.3E-04	0.0001	5.5E-04	-0.0003	-9.6E-04
Midwest	-0.9934	-0.1	-0.9880	-0.05			Midwest	-0.9955	-0.06	-0.9909	-0.04	-0.9916	-0.06
West	-0.9859	-0.05					West	-0.9893	-0.03				
South	-0.9835	-0.04	-0.9358	-0.01			South	-0.9736	-0.01	-0.9318	-0.01	-0.9832	-0.03

Table C.5: Marginal Effect of Early-Onset Depression on the Probability of Employment

(a) Limited							(b) Unlimited						
NCS1	dy/dx	z	dy/dx	z	dy/dx	z	NCS1	dy/dx	z	dy/dx	z	dy/dx	z
Limited	All		Male		Female		Unlimited	All		Male		Female	
EDUC	0.0006	0.40	-0.0001	-0.10	0.0021	0.73	EDUC	0.0010	0.67	0.0001	0.09	0.0025	0.89
SEXF	-0.0170	-2.39					SEXF	-0.0154	-2.24				
DEPEO	-0.0106	-0.79	-0.0161	-0.92	-0.0046	-0.23	DEPEO	-0.0054	-0.44	-0.0116	-0.73	0.0004	0.02
COHAB	0.0378	4.99	0.0516	5.58	0.0204	1.62	COHAB	0.0358	4.92	0.0524	5.80	0.0146	1.24
BLACK	0.0059	0.61	0.0060	0.69	0.0011	0.06	BLACK	0.0088	0.99	0.0070	0.84	0.0064	0.39
HISPANIC	0.0116	1.03	0.0102	1.10	0.0079	0.34	HISPANIC	0.0165	1.66	0.0133	1.56	0.0141	0.69
ALCDLT	0.0102	1.23	0.0097	1.40	0.0033	0.18	ALCDLT	0.0132	1.67	0.0124	1.87	0.0059	0.34
DRGDLT	0.0048	0.42	0.0051	0.53	0.0002	0.01	DRGDLT	0.0029	0.25	0.0025	0.25	0.0003	0.01
GADLT1	0.0012	0.08	-0.0071	-0.43	0.0165	0.74	GADLT1	0.0065	0.50	-0.0032	-0.22	0.0228	1.20
Midwest	0.0016	0.17	0.0136	1.72	-0.0167	-0.89	Midwest	0.0035	0.39	0.0144	1.85	-0.0124	-0.72
West	0.0079	0.83	0.0103	1.28	0.0046	0.25	West	0.0071	0.77	0.0083	1.01	0.0071	0.42
South	-0.0020	-0.21	-0.0047	-0.52	0.0041	0.25	South	-0.0010	-0.11	-0.0047	-0.53	0.0068	0.44
EDUC	-0.00158	-0.23	-0.00253	-0.81	7.58E-05	1.19E-03	EDUC	-0.0025	-0.42	-0.0043	-0.95	0.0001	1.12E-03
SEXF	-0.00473	-0.18					SEXF	-0.0015	-0.06				
DEPEOA	0.003183	1.11	0.001275	0.79	3.68E-05	1.19E-03	DEPEOA	0.0018	0.72	0.0008	0.45	0.00001	1.12E-03
COHAB	0.000584	0.02	0.028514	1.08	-0.0005	-1.19E-03	COHAB	0.0007	0.03	0.0334	1.16	-0.0006	-1.12E-03
BLACK	0.012125	0.27	-0.24007	-1.01			BLACK	0.0102	0.25	-0.1816	-0.92		
ALCDLT	0.009967	0.35	-0.00489	-0.33	0.000363	1.19E-03	ALCDLT	0.0117	0.46	0.0041	0.22	0.0003	1.12E-03
DRGDLT	-0.02675	-0.67	-0.0318	-0.95	-0.00062	-1.19E-03	DRGDLT	-0.0240	-0.66	-0.0390	-0.95	-0.0006	-1.12E-03
GADLT1	-0.05533	-1.41	-0.04958	-0.93	-0.00016	-1.19E-03	GADLT1	-0.0384	-1.20	-0.0459	-0.97	-0.00002	-1.11E-03
Midwest	-0.04272	-0.85	0.017487	0.99	-0.96118	-0.03	Midwest	-0.0365	-0.81	0.0249	1.29	-0.9685	-0.03
West	-0.02462	-0.53	0.031701	1.18	-0.98115	-0.05	West	-0.0195	-0.49	0.0347	1.40	-0.9713	-0.03
South	0.024895	0.68	0.007486	0.64			South	0.0289	0.92	0.0141	0.82		
EDUC	0.0005	0.32	-0.0003	-0.19	0.0020	0.69	EDUC	0.0009	0.61	0.00004	0.03	0.0025	0.91
SEXF	-0.0180	-2.56					SEXF	-0.0158	-2.32				
DEPEPS	-0.0004	-1.49	-0.0002	-0.89	-0.0005	-0.74	DEPEPS	-0.0002	-0.70	-0.0002	-0.88	0.0002	0.37
COHAB	0.0375	4.96	0.0513	5.53	0.0204	1.63	COHAB	0.0357	4.91	0.0520	5.75	0.0146	1.23
BLACK	0.0057	0.60	0.0059	0.66	0.0011	0.06	BLACK	0.0088	0.99	0.0068	0.82	0.0063	0.38
HISPANIC	0.0118	1.05	0.0101	1.07	0.0080	0.35	HISPANIC	0.0165	1.66	0.0132	1.54	0.0140	0.69
ALCDLT	0.0106	1.27	0.0099	1.43	0.0041	0.23	ALCDLT	0.0133	1.69	0.0126	1.89	0.0052	0.30
DRGDLT	0.0056	0.50	0.0050	0.51	0.0009	0.04	DRGDLT	0.0031	0.27	0.0026	0.26	-0.0002	-0.01
GADLT1	0.0002	0.01	-0.0093	-0.55	0.0160	0.74	GADLT1	0.0060	0.47	-0.0047	-0.31	0.0223	1.20
Midwest	0.0016	0.17	0.0138	1.74	-0.0168	-0.90	Midwest	0.0034	0.38	0.0144	1.84	-0.0123	-0.71
West	0.0076	0.79	0.0096	1.16	0.0045	0.25	West	0.0069	0.73	0.0074	0.88	0.0071	0.43
South	-0.0017	-0.19	-0.0046	-0.51	0.0042	0.25	South			-0.0049	-0.55	0.0069	0.45
EDUC	-0.0030	-0.46	-0.0029	-0.81	0.0001	9.2E-04	EDUC	-0.0035	-0.63	-0.0043	-1.03	0.0001	0.001
SEXF	0.0002	0.01					SEXF	0.0015	0.06				
DEPREC	0.0183	1.88	0.0036	0.68	0.0002	9.2E-04	DEPREC	0.0146	1.72	0.0054	0.89	0.0002	0.001
COHAB	-0.0025	-0.10	0.0289	1.1	-0.0004	-9.2E-04	COHAB	-0.0026	-0.12	0.0265	1.07	-0.0005	-0.001
BLACK	0.0225	0.66	-0.1912	-0.90			BLACK	0.0173	0.54	-0.1447	-0.82		
ALCDLT	0.0096	0.36	-0.0022	-0.16	0.0003	9.2E-04	ALCDLT	0.0111	0.46	0.0036	0.24	0.0003	0.001
DRGDLT	-0.0271	-0.71	-0.0448	-1.01	-0.0005	-9.2E-04	DRGDLT	-0.0246	-0.71	-0.0495	-1.09	-0.0006	-0.001
GADLT1	-0.0380	-1.08	-0.0425	-0.89	-0.0001	-9.2E-04	GADLT1	-0.0282	-0.96	-0.0333	-0.87	0.0000	0.001
Midwest	-0.0441	-0.89	0.0189	1.02	-0.9646	-0.03	Midwest	-0.0355	-0.83	0.0220	1.19	-0.9705	-0.031
West	-0.0257	-0.57	0.0317	1.14	-0.9823	-0.04	West	-0.0191	-0.49	0.0297	1.26	-0.9720	-0.031
South	0.0295	0.89	0.0088	0.69			South	0.0327	1.15	0.0132	0.84		

Table C.6: Marginal Effect of Early-Onset Depression and Number of Episodes

(a) Limited							(b) Unlimited						
limited	dy/dx	z	dy/dx	z	dy/dx	z	Unlimited	dy/dx	z	dy/dx	z	dy/dx	z
OCCF	All		Male		Female		OCCF	All		Male		Female	
EDUC	0.0112	3.07	0.0025	0.70	0.0204	3.23	EDUC	0.0112	3.21	0.0028	0.81	0.0201	3.33
SEXF	-0.2431	-15.45					SEXF	-0.2386	-15.72				
DEPEO	0.0518	2.08	0.0270	0.91	0.0722	1.79	DEPEO	0.0470	1.96	0.0241	0.83	0.0613	1.60
DEPEPS	-0.0014	-1.80	-0.0014	-2.42	0.0015	0.80	DEPEPS	-0.0011	-1.98	-0.0010	-2.22	-0.0001	-0.07
COHAB	0.1057	6.67	0.1906	10.81	-0.0114	-0.44	COHAB	0.1158	7.59	0.1942	11.35	0.0059	0.24
BLACK	0.0016	0.06	-0.0163	-0.59	0.0036	0.09	BLACK	-0.0029	-0.12	-0.0166	-0.64	-0.0023	-0.06
HISPANIC	0.0255	0.88	0.0095	0.34	0.0237	0.46	HISPANIC	0.0181	0.65	0.0144	0.55	0.0025	0.05
ALCDLT	0.0470	2.35	0.0536	3.23	-0.0022	-0.05	ALCDLT	0.0539	2.82	0.0540	3.38	0.0192	0.49
DRGDLT	-0.0044	-0.16	-0.0022	-0.08	-0.0271	-0.53	DRGDLT	-0.0008	-0.03	0.0004	0.01	-0.0168	-0.34
GADLT1	0.0220	0.65	0.0205	0.59	0.0361	0.65	GADLT1	0.0223	0.70	0.0135	0.39	0.0455	0.90
Midwest	0.0254	1.19	0.0189	0.87	0.0438	1.22	Midwest	0.0275	1.33	0.0181	0.85	0.0499	1.44
West	0.0110	0.48	-0.0050	-0.21	0.0440	1.16	West	0.0072	0.32	-0.0077	-0.32	0.0410	1.12
South	0.0457	2.22	0.0120	0.55	0.0793	2.32	South	0.0461	2.33	0.0102	0.48	0.0840	2.56
SELFEMP							SELFEMP						
EDUC	-0.0008	-0.32	-0.0006	-0.16	-0.0005	-0.15	EDUC	-0.0011	-0.47	-0.0010	-0.30	-0.0008	-0.23
SEXF	-0.0394	-3.64					SEXF	-0.0367	-3.47				
DEPEO	0.0664	2.78	0.0686	1.81	0.0628	2.16	DEPEO	0.0477	2.19	0.0486	1.40	0.0481	1.81
DEPEPS	0.00004	-0.08	-0.0005	-0.67	0.0004	0.48	DEPEPS	0.0002	0.62	-0.0004	-0.65	0.0007	1.63
COHAB	0.0525	4.92	0.0591	3.84	0.0443	3.06	COHAB	0.0463	4.47	0.0497	3.33	0.0420	2.97
BLACK	-0.0350	-2.12	-0.0440	-1.82	-0.0242	-1.11	BLACK	-0.0468	-3.09	-0.0554	-2.51	-0.0369	-1.88
HISPANIC	-0.0366	-2.08	-0.0382	-1.52	-0.0332	-1.34	HISPANIC	-0.0402	-2.44	-0.0452	-1.94	-0.0302	-1.28
ALCDLT	-0.0110	-0.85	-0.0129	-0.74	-0.0122	-0.61	ALCDLT	-0.0113	-0.89	-0.0113	-0.67	-0.0178	-0.92
DRGDLT	0.0430	2.09	0.0451	1.67	0.0428	1.29	DRGDLT	0.0348	1.79	0.0410	1.59	0.0294	0.95
GADLT1	0.0134	0.55	0.0887	1.90	-0.0389	-1.79	GADLT1	0.0138	0.59	0.0949	2.11	-0.0386	-1.86
Midwest	-0.0172	-1.19	-0.0155	-0.69	-0.0162	-0.91	Midwest	-0.0273	-1.99	-0.0265	-1.26	-0.0253	-1.51
West	0.0051	0.32	0.0176	0.70	-0.0059	-0.30	West	0.0086	0.55	0.0229	0.93	-0.0044	-0.24
South	-0.0091	-0.62	0.0262	1.10	-0.0448	-2.59	South	-0.0153	-1.10	0.0209	0.93	-0.0518	-3.14
LFP							LFP						
EDUC	0.0004	0.34	-0.0004	-0.91	0.0031	1.20	EDUC	0.0003	0.24	-0.0004	-1.00	0.0030	1.20
SEXF	-0.0208	-3.70					SEXF	-0.0205	-3.79				
DEPEO	0.00001	0.001	0.0003	0.06	-0.0002	-0.01	DEPEO	0.0028	0.35	0.0005	0.13	0.0030	0.18
DEPEPS	-0.0004	-1.86	-0.0001	-1.01	-0.0006	-1.20	DEPEPS	-0.0002	-1.40	-0.0001	-1.36	0.0000	-0.05
COHAB	0.0268	4.60	0.0308	4.20	0.0147	1.33	COHAB	0.0240	4.38	0.0289	4.18	0.0083	0.80
BLACK	0.0155	2.98	0.0054	2.18	0.0139	0.98	BLACK	0.0167	3.46	0.0050	2.20	0.0164	1.25
HISPANIC	0.0060	0.73	0.0030	1.25	-0.0022	-0.10	HISPANIC	0.0083	1.13	0.0029	1.38	0.0038	0.20
ALCDLT	0.0165	2.94	0.0045	1.83	0.0221	1.68	ALCDLT	0.0171	3.17	0.0044	1.91	0.0216	1.67
DRGDLT	0.0103	1.31	0.0049	1.80	0.0007	0.03	DRGDLT	0.0093	1.19	0.0044	1.82	-0.0010	-0.04
GADLT1	0.0114	1.39	0.0037	1.41	0.0179	0.99	GADLT1	0.0130	1.75	0.0035	1.60	0.0215	1.34
Midwest	-0.0036	-0.50	0.0013	0.53	-0.0132	-0.82	Midwest	-0.0024	-0.36	0.0016	0.79	-0.0120	-0.78
West	0.0104	1.58	0.0036	1.41	0.0147	1.02	West	0.0104	1.66	0.0035	1.54	0.0139	1.00
South	-0.0020	-0.30	-0.0032	-1.01	0.0082	0.60	South	-0.0017	-0.26	-0.0025	-0.95	0.0077	0.58
EMPW							EMPW						
EDUC	0.0006	0.37	-0.0001	-0.09	0.0021	0.70	EDUC	0.0010	0.64	0.0001	0.09	0.0025	0.91
SEXF	-0.0174	-2.45					SEXF	-0.0155	-2.26				
DEPEO	-0.0093	-0.71	-0.0143	-0.84	-0.0040	-0.20	DEPEO	-0.0046	-0.38	-0.0101	-0.65	-0.0002	-0.01
DEPEPS	-0.0004	-1.42	-0.0002	-0.72	-0.0005	-0.73	DEPEPS	-0.0002	-0.66	-0.0001	-0.77	0.0002	0.37
COHAB	0.0373	4.93	0.0511	5.53	0.0202	1.62	COHAB	0.0356	4.90	0.0519	5.75	0.0146	1.23
BLACK	0.0056	0.59	0.0058	0.65	0.0011	0.06	BLACK	0.0087	0.98	0.0068	0.81	0.0063	0.38
HISPANIC	0.0118	1.06	0.0102	1.10	0.0080	0.35	HISPANIC	0.0166	1.67	0.0132	1.57	0.0140	0.69
ALCDLT	0.0109	1.33	0.0099	1.44	0.0045	0.25	ALCDLT	0.0135	1.72	0.0127	1.91	0.0053	0.30
DRGDLT	0.0065	0.59	0.0059	0.62	0.0014	0.06	DRGDLT	0.0035	0.31	0.0034	0.34	-0.0001	-0.01
GADLT1	0.0030	0.21	-0.0054	-0.34	0.0171	0.78	GADLT1	0.0072	0.56	-0.0019	-0.13	0.0223	1.17
Midwest	0.0016	0.17	0.0136	1.73	-0.0167	-0.89	Midwest	0.0034	0.38	0.0143	1.84	-0.0123	-0.71
West	0.0077	0.81	0.0102	1.26	0.0046	0.25	West	0.0070	0.75	0.0079	0.95	0.0071	0.43
South	-0.0019	-0.20	-0.0044	-0.49	0.0041	0.25	South	-0.0010	-0.11	-0.0047	-0.53	0.0069	0.45

Table C.7: Marginal Effect of Age of Onset and Recency of Episode

(a) Limited

limited	dy/dx	z	dy/dx	z	dy/dx	z
OCCF	All		Male		Female	
EDUC	0.0087	0.68	0.0016	0.13	0.0135	0.69
SEXF	-0.1724	-3.54				
DEPEOA	0.0031	0.48	0.0107	1.77	-0.0036	-0.37
DEPREC	0.0470	2.13	0.0425	1.85	0.0337	1.03
COHAB	-0.0850	-1.65	0.0016	0.03	-0.1558	-2.16
BLACK	0.0216	0.23	-0.0429	-0.29	0.0242	0.19
HISPANIC	0.0237	0.22	-0.0443	-0.35	0.0907	0.57
ALCDLT	0.0002	0.004	-0.0683	-0.93	0.0421	0.51
DRGDLT	0.0549	0.87	0.0452	0.69	0.0395	0.39
GADLT1	-0.0266	-0.42	-0.0868	-0.99	0.0108	0.12
Midwest	0.0983	1.65	0.0731	1.34	0.1176	1.30
West	0.1096	1.81	0.1010	1.71	0.1066	1.12
South	0.1499	2.69	0.0812	1.47	0.1711	1.93
SELFEMP						
EDUC	0.0040	0.35	0.0132	0.66	-0.0068	-0.50
SEXF	-0.0658	-1.38				
DEPEOA	0.0018	0.32	0.0117	1.17	-0.0071	-1.09
DEPREC	-0.0005	-0.03	-0.0017	-0.05	0.0018	0.08
COHAB	-0.0015	-0.03	-0.0239	-0.29	0.0287	0.57
BLACK	-0.0925	-1.42	-0.0425	-0.26	-0.1014	-1.96
HISPANIC	-0.0799	-1.12	-0.1371	-1.43	-0.0575	-0.70
ALCDLT	-0.0147	-0.30	0.0228	0.25	-0.0677	-1.35
DRGDLT	0.0362	0.60	0.0578	0.55	0.0154	0.21
GADLT1	-0.0202	-0.39	0.0921	0.88	-0.1114	-2.47
Midwest	0.0075	0.11	-0.0544	-0.50	0.0390	0.49
West	0.0286	0.42	0.0211	0.19	0.0049	0.06
South	0.0151	0.22	-0.0665	-0.63	0.0830	0.89
LFP						
EDUC			-0.0002	-0.001	0.0015	0.002
SEXF						
DEPEOA			-0.0001	-0.001	-0.0004	-0.002
DEPREC			0.0008	0.001	0.0000	-0.002
ALCDLT			0.0010	0.001	0.0037	0.002
DRGDLT			-0.0018	-0.001	-0.0115	-0.002
GADLT1			-0.0004	-0.001	-0.0002	-0.002
Midwest			-0.9877	-0.06	-0.9856	-0.07
West					-0.9872	-0.07
South			-0.9308	-0.01		
EMPW						
EDUC	-0.0032	-0.49	-0.0029	-0.85	0.0001	0.001
SEXF	-0.0011	-0.05				
DEPEOA	0.0022	0.77	0.0011	0.70	0.00002	0.001
DEPREC	0.0167	1.69	0.0022	0.46	0.0002	0.001
COHAB	-0.0038	-0.15	0.0253	1.03	-0.0004	-0.001
BLACK	0.0223	0.67	-0.2257	-0.96		
ALCDLT	0.0090	0.34	-0.0053	-0.35	0.0003	0.001
DRGDLT	-0.0237	-0.64	-0.0358	-0.96	-0.0005	-0.001
GADLT1	-0.0384	-1.09	-0.0412	-0.85	-0.0001	-0.001
Midwest	-0.0483	-0.95	0.0169	0.98	-0.9637	-0.032
West	-0.0250	-0.56	0.0299	1.14	-0.9815	-0.052
South	0.0279	0.84	0.0074	0.64		

(b) Unlimited

Unlimited	dy/dx	z	dy/dx	z	dy/dx	z
OCCF	All		Male		Female	
EDUC	0.0090	0.75	-0.0133	-1.02	0.0231	1.30
SEXF	-0.1717	-3.71				
DEPEOA	0.0010	0.16	0.0068	1.13	-0.0023	-0.27
DEPREC	0.0430	2.10	0.0609	2.85	0.0200	0.68
COHAB	-0.0613	-1.25	-0.0246	-0.43	-0.1072	-1.57
BLACK	-0.0388	-0.40	-0.0140	-0.11	-0.0788	-0.60
HISPANIC	-0.0668	-0.62	-0.1556	-0.94	-0.0257	-0.17
ALCDLT	0.0415	0.75	-0.0280	-0.43	0.0956	1.24
DRGDLT	0.0594	0.97	-0.0125	-0.17	0.0891	0.97
GADLT1	-0.0136	-0.24	-0.0136	-0.21	0.0034	0.04
Midwest	0.1057	1.84	0.0723	1.34	0.1390	1.64
West	0.0966	1.64	0.0954	1.70	0.0729	0.79
South	0.1607	2.99	0.0823	1.44	0.1891	2.31
SELFEMP						
EDUC	0.0021	0.20	0.0041	0.23	-0.0047	-0.38
SEXF	-0.0653	-1.49				
DEPEOA	-0.0014	-0.28	0.0088	0.99	-0.0088	-1.62
DEPREC	0.0035	0.20	-0.0023	-0.07	0.0102	0.51
COHAB	-0.0096	-0.23	-0.0532	-0.70	0.0266	0.58
BLACK	-0.0930	-1.63	-0.0809	-0.64	-0.0896	-1.74
HISPANIC	-0.0422	-0.59	-0.1406	-1.71	0.0332	0.31
ALCDLT	-0.0212	-0.47	0.0318	0.38	-0.0699	-1.53
DRGDLT	0.0169	0.31	0.0144	0.16	0.0188	0.27
GADLT1	-0.0318	-0.71	0.0415	0.47	-0.0948	-2.26
Midwest	-0.0027	-0.04	-0.0664	-0.67	0.0239	0.34
West	0.0243	0.40	0.0325	0.31	-0.0068	-0.10
South	-0.0098	-0.17	-0.0703	-0.72	0.0171	0.25
LFP						
EDUC	4.2E-05	1.57E-03	-0.0001	-0.66	0.0008	5.8E-04
SEXF	-0.0010	-1.57E-03				
DEPEOA	-0.0001	-1.57E-03	0.0000	-0.66	-0.0003	-5.8E-04
DEPREC	0.0002	1.57E-03	0.0004	0.93	0.0000	-5.8E-04
COHAB	-0.0012	-1.57E-03				
ALCDLT	0.0003	1.57E-03	0.0007	0.59	0.0023	5.8E-04
DRGDLT	-0.0010	-1.57E-03	-0.0008	-0.35	-0.0071	-5.8E-04
GADLT1	-0.0005	-1.57E-03	0.0000	0.05	0.0000	5.8E-04
Midwest	-0.9941	-0.10	-0.9937	-75.04	-0.9920	-0.04
West	-0.9868	-0.05			-0.9842	-0.02
South	-0.9678	-0.02	-0.9354	-10.98		
EMPW						
EDUC	-0.0037	-0.65	-0.0047	-1.06	0.0001	0.001
SEXF	0.0010	0.04				
DEPEOA	0.0009	0.36	0.0006	0.35	3.9E-07	0.001
DEPREC	0.0139	1.60	0.0054	0.87	0.0002	0.001
COHAB	-0.0033	-0.15	0.0251	1.03	-0.0005	-0.001
BLACK	0.0171	0.53	-0.1530	-0.84		
ALCDLT	0.0109	0.46	0.0023	0.14	0.0003	0.001
DRGDLT	-0.0232	-0.67	-0.0463	-1.05	-0.0006	-0.001
GADLT1	-0.0281	-0.96	-0.0313	-0.83	1.2E-05	0.001
Midwest	-0.0375	-0.85	0.0221	1.20	-0.9705	-0.031
West	-0.0189	-0.49	0.0298	1.28	-0.9720	-0.031
South	0.0320	1.11	0.0129	0.82		

Table C.8: Marginal Effect of Early-Onset Depression on Occupation-Limited

ALL	Professional	Managerial	Sales	Clerical	Technician	Service	z
NCSI	z	z	z	z	z	z	z
dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
EDUC	0.0859	23.79	8.96	0.0143	4.91	-0.0073	-1.75
SEXF	0.0268	2.50	-3.70	0.0212	2.04	0.29443	18.55
DEPEO	0.0199	0.94	0.69	0.0045	0.23	-0.0600	-2.73
COHAB	0.0180	1.61	4.67	-0.0264	-2.33	-0.0698	-4.50
BLACK	-0.0517	-3.45	-2.68	-0.0173	-1.05	0.0008	0.03
HISPANIC	-0.0436	-2.30	-0.95	0.0076	0.34	0.0686	2.07
ALCDLT	-0.0333	-2.49	0.74	-0.0149	-1.08	-0.0073	-0.35
DRGDLT	0.0286	1.21	-0.0071	0.0068	0.34	-0.0354	-1.42
GADLTI	-0.0307	-1.45	-0.0088	-0.0161	-0.71	0.0425	1.13
Midwest	0.0312	1.76	0.0069	0.30	-0.0128	-0.0185	-0.87
West	0.0083	0.48	0.0333	1.32	-0.0023	0.14	0.96
South	0.0155	0.93	0.0543	2.28	-0.0066	-0.44	-1.01
dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
EDUC	0.0722	16.58	7.76	0.0186	6.23	0.0108	2.95
DEPEO	0.0281	0.90	-0.0133	0.0298	1.01	0.0074	0.24
COHAB	0.0195	1.43	0.0922	4.72	-0.0118	-0.98	-3.96
BLACK	-0.0654	-3.80	-0.0985	-3.53	-0.0112	-0.59	-0.0332
HISPANIC	-0.0454	-2.11	-0.0085	-0.23	0.0042	0.18	0.0224
ALCDLT	-0.0303	-2.02	0.0202	0.86	-0.0161	-1.24	-0.0183
DRGDLT	0.0088	0.36	-0.0246	-0.83	0.0150	-0.0048	-0.22
GADLTI	-0.0448	-1.98	-0.0018	-0.04	-0.0248	-0.10	-0.0218
Midwest	0.0160	0.77	0.0299	0.93	-0.0017	-0.10	-0.0232
West	0.0230	1.03	0.0498	1.43	0.0146	0.73	-0.0134
South	0.0028	0.14	0.0794	2.39	0.008044	0.44	-0.0373
dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
EDUC	0.0913	16.14	6.02	0.0066	1.39	-0.0402	-5.16
DEPEO	0.0174	0.65	1.44	-0.0123	-0.48	-0.1270	-3.07
COHAB	0.0166	1.03	0.0291	1.47	-0.0364	-0.0710	-2.55
BLACK	-0.0318	-1.46	-0.0191	-0.65	-0.0199	-0.0247	-0.58
HISPANIC	-0.0357	-1.26	-0.0513	-1.55	0.0116	0.34	1.257
ALCDLT	-0.0383	-1.83	-0.0188	-0.65	-0.0032	-0.12	0.0356
DRGDLT	0.0551	1.30	0.0181	0.45	-0.0129	-0.43	-0.0816
GADLTI	-0.0046	-0.13	-0.0150	-0.39	-0.0085	-0.24	0.0870
Midwest	0.0461	1.68	-0.0207	-0.75	-0.0188	-0.88	-0.0151
West	-0.0174	-0.77	0.0110	0.36	-0.0193	-0.87	0.0638
South	0.0217	0.91	0.0121	0.43	-0.0196	-0.95	0.0064
dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
EDUC	0.0681	11.84	-0.0233	-5.90	-0.0233	-0.0681	11.84
DEPEO	0.06376	1.58	0.0066	0.27	0.06376	0.06376	1.58
COHAB	0.0474	2.23	0.0143	0.98	0.0143	0.0474	2.23
BLACK	0.0647	1.71	0.0308	1.17	0.0308	0.0647	1.71
HISPANIC	-0.0081	-0.19	-0.0422	-1.84	-0.0422	-0.0081	-0.19
ALCDLT	0.0407	1.13	-0.0161	-0.79	0.0407	0.0407	1.13
DRGDLT	-0.0263	-0.71	0.0476	1.37	-0.0263	-0.0263	-0.71
GADLTI	-0.0865	-2.59	0.0277	0.80	-0.0865	-0.0865	-2.59
Midwest	-0.0458	-1.71	0.0543	1.96	-0.0458	-0.0458	-1.71
West	-0.0494	-1.72	0.0113	0.42	-0.0494	-0.0494	-1.72
South	-0.0474	-1.79	0.0268	1.11	-0.0474	-0.0474	-1.79

Table C.9: Marginal Effect of Early-Onset Depression on Occupation-Unlimited

ALL	Professional	Managerial	Sales	Clerical	Technician	Service	z
NCSI	24.21	9.55	5.38	-0.0053	-1.35	-0.0634	-16.22
EDUC	0.0825	0.0371	0.0148	0.0058	19.41	-0.2880	-16.01
SEXP	0.0251	-0.0462	0.0219	0.2958	2.22	-0.0634	-19.84
DEPEO	0.0152	0.0099	0.38	-0.0444	-0.11	-0.0037	-0.13
COHAB	0.0128	0.0696	4.86	-0.0668	-2.22	0.0462	3.11
BLACK	-0.0534	-0.0561	-2.58	-0.0213	-1.41	0.0093	0.36
HISPANIC	-0.0390	-0.0276	-1.05	0.0203	0.93	-0.0550	-2.30
ALCDDL	-0.0302	0.0313	1.61	-0.0160	-1.23	0.0348	1.83
DRGDLT	0.0325	-0.0117	-0.49	0.0039	0.20	0.0288	1.14
GADLTI	-0.0361	0.0170	0.51	-0.0099	-0.46	0.0256	0.70
Midwest	0.0278	-0.0009	-0.04	-0.0075	-0.51	0.0025	0.12
West	0.0063	0.0282	1.18	0.0287	1.24	-0.0307	-1.37
South	0.0122	0.0554	2.45	-0.0189	-0.96	-0.0048	-0.22
EDUC	0.0695	0.0418	8.45	0.0102	2.99	-0.0953	-15.03
DEPEO	0.0212	-0.0240	-0.66	0.0041	0.14	-0.0091	-0.18
COHAB	0.0158	0.0885	4.80	-0.0137	-1.23	0.0673	2.78
BLACK	-0.0636	-0.0962	-3.72	-0.0137	-0.80	-0.0035	-0.08
HISPANIC	-0.0449	-0.0171	-0.51	0.0077	0.35	-0.0585	-1.38
ALCDDL	-0.0300	0.0296	1.33	-0.0190	-1.61	0.0670	2.38
DRGDLT	0.0143	-0.0296	-1.07	0.0138	0.68	0.0279	0.74
GADLTI	-0.0476	0.0254	0.52	-0.0241	-0.92	-0.0072	-0.12
Midwest	0.0101	0.0177	0.59	-0.0005	-0.03	-0.0394	-1.11
West	0.0176	0.0409	1.25	0.0158	0.84	-0.0577	-1.54
South	-0.0008	0.0829	2.64	-0.0392	-2.50	-0.0393	-1.12
EDUC	0.0867	0.0320	5.94	-0.0345	-4.63	-0.0241	-6.42
DEPEO	0.0124	0.0378	1.17	-0.0922	-2.30	-0.0004	-0.02
COHAB	0.0096	0.0320	1.68	-0.0672	-2.51	0.0061	0.43
BLACK	-0.0372	-0.0113	-0.39	-0.0054	-0.13	0.0159	0.68
HISPANIC	-0.0246	-0.0390	-1.18	0.0340	0.97	-0.0531	-2.72
ALCDDL	-0.0304	0.0064	0.21	0.0024	0.09	-0.0248	-1.30
DRGDLT	0.0513	0.0175	0.45	-0.0177	-0.63	0.0402	1.20
GADLTI	-0.0136	0.0066	0.17	0.0059	0.17	0.0387	1.15
Midwest	0.0462	-0.0221	-0.83	-0.0110	-0.51	0.0473	1.84
West	-0.0148	0.0111	0.38	-0.0124	-0.56	-0.0024	-0.10
South	0.0193	0.0106	0.39	-0.0142	-0.69	0.0226	1.02
EDUC	0.0867	0.0320	5.94	-0.0345	-4.63	-0.0241	-6.42
DEPEO	0.0124	0.0378	1.17	-0.0922	-2.30	-0.0004	-0.02
COHAB	0.0096	0.0320	1.68	-0.0672	-2.51	0.0061	0.43
BLACK	-0.0372	-0.0113	-0.39	-0.0054	-0.13	0.0159	0.68
HISPANIC	-0.0246	-0.0390	-1.18	0.0340	0.97	-0.0531	-2.72
ALCDDL	-0.0304	0.0064	0.21	0.0024	0.09	-0.0248	-1.30
DRGDLT	0.0513	0.0175	0.45	-0.0177	-0.63	0.0402	1.20
GADLTI	-0.0136	0.0066	0.17	0.0059	0.17	0.0387	1.15
Midwest	0.0462	-0.0221	-0.83	-0.0110	-0.51	0.0473	1.84
West	-0.0148	0.0111	0.38	-0.0124	-0.56	-0.0024	-0.10
South	0.0193	0.0106	0.39	-0.0142	-0.69	0.0226	1.02
EDUC	0.0867	0.0320	5.94	-0.0345	-4.63	-0.0241	-6.42
DEPEO	0.0124	0.0378	1.17	-0.0922	-2.30	-0.0004	-0.02
COHAB	0.0096	0.0320	1.68	-0.0672	-2.51	0.0061	0.43
BLACK	-0.0372	-0.0113	-0.39	-0.0054	-0.13	0.0159	0.68
HISPANIC	-0.0246	-0.0390	-1.18	0.0340	0.97	-0.0531	-2.72
ALCDDL	-0.0304	0.0064	0.21	0.0024	0.09	-0.0248	-1.30
DRGDLT	0.0513	0.0175	0.45	-0.0177	-0.63	0.0402	1.20
GADLTI	-0.0136	0.0066	0.17	0.0059	0.17	0.0387	1.15
Midwest	0.0462	-0.0221	-0.83	-0.0110	-0.51	0.0473	1.84
West	-0.0148	0.0111	0.38	-0.0124	-0.56	-0.0024	-0.10
South	0.0193	0.0106	0.39	-0.0142	-0.69	0.0226	1.02

Table C.12: Marginal Effect of Number of Episodes on Occupation-Limited

Men	Professional	z	dy/dx	Managerial	z	dy/dx	Sales	z	dy/dx	Clerical	z	dy/dx	Technician	z	dy/dx	Service	z
NCSI - Good																	
EDUC	0.0860	23.82	0.0369	9.01	0.0144	4.93	-0.0079	-1.91	-0.0644	15.94	-0.0649	15.19	-0.0644	15.94	-0.0649	15.19	
SEXF	0.0278	2.60	-0.0512	-3.63	0.0213	2.07	0.2900	18.38	-0.2844	19.19	-0.0035	-0.23	-0.2844	19.19	-0.0035	-0.23	
DEPEPS	-0.0007	-0.97	-0.0002	-0.19	-0.0007	-0.86	-0.0002	-0.21	-0.0001	-0.11	0.0019	2.55	-0.0001	-0.11	0.0019	2.55	
COHAB	0.0169	1.50	0.0695	4.62	-0.0269	-2.38	-0.0684	-4.42	0.0437	2.89	-0.0348	-2.14	0.0437	2.89	-0.0348	-2.14	
BLACK	-0.0519	-3.48	-0.0613	-2.69	-0.0175	-1.08	0.0013	0.05	0.0150	0.56	0.1144	3.80	0.0150	0.56	0.1144	3.80	
HISPANIC	-0.0436	-2.30	-0.0260	-0.94	0.0080	0.36	0.0691	2.09	-0.0398	-1.55	0.0324	1.01	-0.0398	-1.55	0.0324	1.01	
ALCDDL	-0.0318	-2.36	0.0169	0.84	-0.0134	-0.96	-0.0118	-0.56	0.0361	1.84	0.0040	0.19	0.0361	1.84	0.0040	0.19	
DRGDLT	0.0337	1.40	-0.0045	-0.18	0.0094	0.45	-0.0412	-1.69	0.0283	1.10	-0.0256	-1.00	0.0283	1.10	-0.0256	-1.00	
GADLTI	-0.0218	-0.99	-0.0002	-0.01	-0.0118	-0.51	0.0212	0.62	0.0171	0.46	-0.0045	-0.12	0.0171	0.46	-0.0045	-0.12	
Midwest	0.0317	1.77	0.0071	0.31	-0.0126	-0.84	-0.0194	-0.92	0.0045	0.20	-0.0112	-0.50	0.0045	0.20	-0.0112	-0.50	
West	0.0095	0.54	0.0343	1.36	-0.0020	-0.12	0.0216	0.91	-0.0261	-1.14	-0.0373	-1.59	-0.0261	-1.14	-0.0373	-1.59	
South	0.0160	0.95	0.0539	2.26	-0.0065	-0.44	-0.0199	-0.97	-0.0037	-0.17	-0.0398	-1.85	-0.0037	-0.17	-0.0398	-1.85	
EDUC	0.0729	16.46	0.0416	7.77	0.0175	5.48	0.0110	3.00	-0.0996	14.93	-0.0434	-8.68	-0.0996	14.93	-0.0434	-8.68	
DEPEPS	-0.0004	-0.41	0.0004	0.37	-0.0037	-1.22	0.0001	0.10	0.0010	0.57	0.0026	2.63	0.0010	0.57	0.0026	2.63	
COHAB	0.0182	1.32	0.0927	4.71	-0.0127	-1.13	-0.0597	-3.98	0.0566	2.26	-0.0951	-4.64	0.0566	2.26	-0.0951	-4.64	
BLACK	-0.0665	-3.86	-0.0992	-3.54	-0.0117	-0.67	0.0327	1.17	-0.0080	-0.18	0.1526	3.66	-0.0080	-0.18	0.1526	3.66	
HISPANIC	-0.0455	-2.09	-0.0075	-0.20	0.0038	0.17	0.0231	0.77	-0.0415	-0.93	0.0677	1.64	-0.0415	-0.93	0.0677	1.64	
ALCDDL	-0.0299	-1.97	0.0203	0.86	-0.0130	-1.05	-0.0182	-1.17	0.0637	2.17	-0.0229	-1.01	0.0637	2.17	-0.0229	-1.01	
DRGDLT	0.0147	0.58	-0.0253	-0.85	0.0221	1.02	-0.0033	-0.15	0.0185	0.48	-0.0267	-0.91	0.0185	0.48	-0.0267	-0.91	
GADLTI	-0.0353	-1.41	0.0010	0.02	-0.0103	-0.42	-0.0183	-0.61	-0.0103	-0.17	0.0733	1.31	-0.0103	-0.17	0.0733	1.31	
Midwest	0.0157	0.75	0.0300	0.93	-0.0018	-0.11	-0.0235	-1.35	-0.0432	-1.19	0.0228	0.73	-0.0432	-1.19	0.0228	0.73	
West	0.0248	1.10	0.0499	1.43	0.0155	0.81	-0.0133	-0.72	-0.0633	-1.66	-0.0137	-0.43	-0.0633	-1.66	-0.0137	-0.43	
South	0.0041	0.20	0.0796	2.38	0.0090	0.52	-0.0375	-2.22	-0.0406	-1.11	-0.0146	-0.50	-0.0406	-1.11	-0.0146	-0.50	
EDUC	0.0912	16.13	0.0343	6.14	0.0066	1.39	-0.0416	-5.36	-0.0230	-5.84	-0.0674	-11.75	-0.0230	-5.84	-0.0674	-11.75	
DEPEPS	-0.0003	-0.25	0.0001	0.07	0.0008	0.79	-0.0005	-0.26	0.0003	0.36	-0.0003	-0.22	0.0003	0.36	-0.0003	-0.22	
COHAB	0.0159	0.99	0.0273	1.38	-0.0359	-2.07	-0.0669	-2.41	0.0142	0.97	0.0454	2.14	0.0142	0.97	0.0454	2.14	
BLACK	-0.0317	-1.46	-0.0195	-0.66	-0.0198	-0.85	-0.0232	-0.55	0.0305	1.16	0.0637	1.69	0.0305	1.16	0.0637	1.69	
HISPANIC	-0.0357	-1.26	-0.0512	-1.55	0.0111	0.32	0.1268	2.31	-0.0124	-1.86	-0.0087	-0.21	-0.0124	-1.86	-0.0087	-0.21	
ALCDDL	-0.0369	-1.76	-0.0128	-0.43	-0.0064	-0.25	0.0177	0.41	-0.0160	-1.37	0.0545	1.48	-0.0160	-1.37	0.0545	1.48	
DRGDLT	0.0589	1.37	0.0242	0.58	-0.0155	-0.53	-0.0937	-1.92	0.0475	1.37	-0.0213	-0.57	0.0475	1.37	-0.0213	-0.57	
GADLTI	0.0046	0.13	0.0045	0.11	-0.0117	-0.36	0.0424	0.74	0.0315	0.93	-0.0713	-2.01	0.0315	0.93	-0.0713	-2.01	
Midwest	0.0469	1.71	-0.0189	-0.68	-0.0193	-0.91	-0.0182	-0.46	0.0550	1.99	-0.0454	-1.70	0.0550	1.99	-0.0454	-1.70	
West	-0.0168	-0.74	0.0129	0.42	-0.0197	-0.90	0.0619	1.43	0.0114	0.42	-0.0497	-1.73	0.0114	0.42	-0.0497	-1.73	
South	0.0215	0.90	0.0112	0.40	-0.0193	-0.93	0.0090	0.24	0.0270	1.12	-0.0494	-1.87	0.0270	1.12	-0.0494	-1.87	

Table C.13: Marginal Effect of Number of Episodes on Occupation-Unlimited

Men	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
NCS1 - Good	Professional		Managerial		Sales		Clerical		Technician		Service	
EDUC	0.0826	24.23	0.0373	9.61	0.0148	5.38	-0.0059	-1.51	-0.0633	-16.23	-0.0653	-15.96
SEXF	0.0262	2.61	-0.0453	-3.37	0.0219	2.24	0.2922	19.32	-0.2883	-20.01	-0.0067	-0.46
DEPEFS	-0.0005	-0.94	0.0006	1.09	-0.0003	-0.65	-0.0010		0.0005	0.98	0.0007	1.25
COHAB	0.0119	1.13	0.0697	4.86	-0.0240	-2.24	-0.0660	-4.46	0.0464	3.13	-0.0380	-2.42
BLACK	-0.0537	-3.91	-0.0560	-2.57	-0.0213	-1.42	0.0160	0.67	0.0094	0.37	0.1056	3.71
HISPANIC	-0.0389	-2.16	-0.0277	-1.06	0.0204	0.93	0.0535	1.76	-0.0552	-2.31	0.0480	1.55
ALCDLT	-0.0292	-2.28	0.0311	1.59	-0.0152	-1.16	-0.0136	-0.68	0.0339	1.78	-0.0070	-0.35
DRGDLT	0.0366	1.59	-0.0126	-0.53	0.0050	0.26	-0.0315	-1.30	0.0264	1.05	-0.0239	-0.95
GADLTI	-0.0294	-1.52	0.0178	0.55	-0.0080	-0.37	0.0120	0.39	0.0223	0.63	-0.0148	-0.45
Midwest	0.0277	1.65	-0.0006	-0.03	-0.0076	-0.52	-0.0121	-0.59	0.0029	0.13	-0.0102	-0.46
West	0.0067	0.41	0.0287	1.20	0.0026	0.16	0.0273	1.18	-0.0305	-1.36	-0.0347	-1.51
South	0.0121	0.78	0.0553	2.45	-0.0066	-0.46	-0.0191	-0.97	-0.0047	-0.22	-0.0370	-1.77
EDUC	0.0696	16.93	0.0418	8.45	0.0187	6.87	0.0102	3.02	-0.0955	-15.10	-0.0448	-9.44
DEPEFS	-0.0008	-1.26	0.0006	0.94	-0.0007	-1.07	-0.0007	-0.99	0.0006	0.71	0.0009	1.34
COHAB	0.0143	1.10	0.0898	4.86	-0.0146	-1.32	-0.0585	-4.16	0.0678	2.80	-0.0988	-4.97
BLACK	-0.0642	-3.91	-0.0958	-3.69	-0.0142	-0.85	0.0415	1.55	-0.0031	-0.07	0.1358	3.46
HISPANIC	-0.0449	-2.20	-0.0170	-0.50	0.0078	0.35	0.0172	0.63	-0.0580	-1.37	0.0949	2.34
ALCDLT	-0.0293	-2.05	0.0289	1.29	-0.0180	-1.52	-0.0182	-1.27	0.0669	2.37	-0.0303	-1.40
DRGDLT	0.0198	0.81	-0.0340	-1.25	0.0190	0.90	-0.0040	-0.19	0.0243	0.65	-0.0251	-0.87
GADLTI	-0.0389	-1.71	0.0148	0.32	-0.0173	-0.81	-0.0182	-0.65	-0.0074	-0.13	0.0671	1.26
Midwest	0.0091	0.47	0.0184	0.61	-0.0012	-0.07	-0.0205	-1.27	-0.0388	-1.09	0.0330	1.07
West	0.0173	0.83	0.0409	1.24	0.0158	0.85	-0.0127	-0.74	-0.0574	-1.53	-0.0039	-0.12
South	-0.0006	-0.03	0.0826	2.63	0.0035	0.21	-0.0392	-2.50	-0.0395	-1.12	-0.0069	-0.24
EDUC	0.0868	16.33	0.0327	6.07	0.0064	1.40	-0.0361	-4.85	-0.0237	-6.33	-0.0661	-11.98
DEPEFS	0.0003	0.43	0.0005	0.77	0.0002	0.25	-0.0015	-1.25	0.0006	1.28	-0.0001	-0.09
COHAB	0.0090	0.61	0.0305	1.60	-0.0276	-1.68	-0.0645	-2.42	0.0062	0.44	0.0463	2.25
BLACK	-0.0372	-1.96	-0.0120	-0.42	-0.0241	-1.10	-0.0032	-0.08	0.0152	0.66	0.0612	1.71
HISPANIC	-0.0247	-0.90	-0.0394	-1.19	0.0037	0.96	0.0925	1.79	-0.0529	-2.71	-0.0092	-0.23
ALCDLT	-0.0302	-1.51	0.0093	0.30	-0.0010	-0.01	0.0129	0.31	-0.0274	-1.48	0.0365	1.05
DRGDLT	0.0527	1.33	0.0213	0.54	-0.0195	-0.71	-0.0692	-1.43	0.0376	1.15	-0.0229	-0.63
GADLTI	-0.0083	-0.28	0.0218	0.55	-0.0005	-0.01	0.0263	0.50	0.0354	1.14	-0.0747	-2.30
Midwest	0.0465	1.81	-0.0211	-0.79	-0.0113	-0.53	-0.0069	-0.18	0.0478	1.86	-0.0549	-2.14
West	-0.0145	-0.70	0.0123	0.42	-0.0128	-0.58	0.0708	1.71	-0.0025	-0.10	-0.0532	-1.92
South	0.0189	0.86	0.0105	0.39	-0.0138	-0.68	0.0120	0.33	0.0233	1.05	-0.0508	-2.00

Table C.14: Marginal Effect of Recency of Episodes on Occupation-Limited

Men	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
NCS1- Good	Professional		Managerial		Sales		Clerical		Technician		Service	
EDUC	0.1055	7.77	0.0054	0.37	0.0081	0.75	-0.0093	-0.63	-0.0515	-4.36	-0.0582	-4.14
SEXF	0.0298	0.66	0.0046	0.09	-0.0166	-0.44	0.1732	3.49	-0.2240	-4.13	0.0330	0.65
DEPREC	0.0366	1.79	-0.0001	-0.01	0.0049	0.32	-0.0055	-0.26	0.0071	0.39	-0.0430	-2.09
COHAB	0.0224	0.47	-0.0187	-0.36	-0.0465	-1.21	0.0039	0.08	0.0187	0.43	0.0202	0.39
ALCDDL	-0.0281	-0.53	0.0222	0.37	-0.0174	-0.43	-0.0091	-0.16	-0.0403	-0.89	0.0726	1.18
DRGDLT	0.0082	0.12	-0.0589	-0.99	0.0416	0.77	-0.0126	-0.19	0.0511	0.86	-0.0293	-0.48
Midwest	0.0784	0.95	0.0047	0.05	-0.0027	-0.05	0.0131	0.18	0.0294	0.45	-0.1228	-2.16
West	0.0489	0.66	0.1226	1.31	0.0164	0.29	-0.0484	-0.69	-0.0266	-0.46	-0.1128	-1.87
South	0.0132	0.18	0.1717	1.68	-0.0030	-0.05	-0.0403	-0.57	-0.0605	-1.08	-0.0810	-1.33
EDUC	0.1063	4.64	-0.0035	-0.16	0.0156	0.85	-0.0083	-0.58	-0.0083	-0.58	-0.0277	-1.38
DEPREC	-0.0032	-0.12	-0.0088	-0.26	0.0023	0.09	0.0325	1.41	0.0325	1.41	-0.0346	-1.08
COHAB	0.1469	2.02	0.0165	0.20	0.0123	0.19	-0.0591	-1.06	-0.0591	-1.06	-0.1396	-1.63
ALCDDL	-0.0022	-0.03	0.0316	0.34	-0.0727	-1.02	-0.0447	-0.76	-0.0447	-0.76	0.0971	0.99
DRGDLT	-0.0056	-0.07	-0.0060	-0.06	-0.0146	-0.18	-0.0372	-0.61	-0.0372	-0.61	-0.0548	-0.58
Midwest	0.2134	1.15	0.1223	0.55	-0.0812	-1.29	-0.0800	-1.74	-0.0800	-1.74	-0.1453	-1.79
West	0.1804	1.32	0.2154	1.10	-0.0312	-0.47	-0.1013	-1.93	-0.1013	-1.93	-0.1002	-1.10
South	0.0862	0.64	0.3255	1.44	-0.0698	-1.15	-0.0755	-1.74	-0.0755	-1.74	-0.1394	-1.66
EDUC	0.1096	5.85	0.0219	1.17	0.0034	0.31	-0.0241	-1.05	-0.0311	-2.50	-0.0797	-4.23
DEPREC	0.0521	1.83	0.0016	0.06	0.0104	0.66	-0.0267	-0.82	0.0063	0.38	-0.0438	-1.67
COHAB	-0.0425	-0.65	-0.0441	-0.68	-0.0746	-1.79	0.0222	0.29	0.0088	0.22	0.1302	2.02
ALCDDL	-0.0409	-0.55	-0.0039	-0.05	0.0296	0.64	0.0267	0.30	-0.0577	-1.52	0.0462	0.61
DRGDLT	0.0144	0.14	-0.1034	-1.42	0.0792	1.15	0.0115	0.11	0.0116	0.20	-0.0134	-0.16
Midwest	-0.0041	-0.04	-0.0715	-0.80	0.0914	0.90	0.1140	0.94	-0.0109	-0.23	-0.1189	-1.70
West	-0.0193	-0.21	0.0678	0.62	0.0811	0.77	0.0034	0.03	0.0098	0.17	-0.1427	-1.99
South	-0.0370	-0.40	0.0769	0.68	0.0782	0.72	0.0061	0.05	-0.0833	-1.86	-0.0410	-0.51

Table C.15: Marginal Effect of Recency of Episodes on Occupation-Unlimited

Men	dy/dx	z	Managerial	dy/dx	z	Sales	dy/dx	z	Clerical	dy/dx	z	Technician	dy/dx	z	Service	dy/dx	z	
NCS1 - Good																		
EDUC	0.1034	8.44	0.0143	1.04	0.0062	0.62	-0.0149	-1.07	-0.0532	-4.71	-0.0558	-4.23						
SEXF	0.0343	0.88	0.0132	0.28	-0.0131	-0.38	0.2140	4.63	-0.2653	-5.01	0.0169	0.35						
DEPREC	0.0255	1.46	0.0057	0.29	0.0027	0.19	0.0083	0.41	0.0021	0.12	-0.0444	-2.26						
COHAB	0.0302	0.72	0.0030	0.06	-0.0364	-1.01	0.0091	0.18	0.0052	0.12	-0.0111	-0.22						
ALCDDL	0.00004	0.001	0.0104	0.18	-0.0019	-0.05	-0.0310	-0.55	-0.0177	-0.38	0.0402	0.69						
DRGDLT	0.0340	0.54	-0.0381	-0.63	0.0318	0.63	-0.0073	-0.11	0.0263	0.48	-0.0467	-0.80						
Midwest	0.0818	1.08	-0.0164	-0.20	-0.0005	-0.01	0.0233	0.30	0.0259	0.40	-0.1141	-2.06						
West	0.0318	0.49	0.1071	1.23	0.0144	0.27	0.0204	0.27	-0.0528	-0.97	-0.1208	-2.11						
South	0.0064	0.10	0.1280	1.43	0.0047	0.09	0.0227	0.30	-0.0600	-1.11	-0.1019	-1.81						
EDUC	0.0960	4.46	0.0065	0.30	0.0158	0.98	-0.0050	-0.39	-0.0871	-3.34	-0.0261	-1.36						
DEPREC	-0.0074	-0.33	0.0012	0.04	0.0026	0.11	0.0286	1.41	0.0149	0.36	-0.0399	-1.28						
COHAB	0.1503	2.32	0.0018	0.02	0.0153	0.28	-0.0467	-0.95	0.0445	0.43	-0.1652	-1.99						
ALCDDL	0.0049	0.08	-0.0183	-0.22	-0.0731	-1.12	-0.0494	-0.90	0.0702	0.63	0.0656	0.72						
DRGDLT	0.0244	0.36	0.0076	0.08	-0.0067	-0.09	-0.0312	-0.55	0.0870	0.72	-0.0811	-0.91						
Midwest	0.1496	0.99	0.1271	0.58	-0.0764	-1.39	-0.0735	-1.72	-0.0130	-0.08	-0.1138	-1.29						
West	0.1618	1.25	0.2386	1.17	-0.0235	-0.41	-0.0808	-1.81	-0.2092	-1.49	-0.0869	-0.95						
South	0.0733	0.66	0.3207	1.50	-0.0651	-1.20	-0.0702	-1.68	-0.1079	-0.68	-0.1508	-1.77						
EDUC	0.1072	6.58	0.0259	1.49	-0.0002	-0.02	-0.0351	-1.68	-0.0312	-2.97	-0.0666	-3.99						
DEPREC	0.0360	1.53	0.0055	0.22	0.0046	0.33	-0.0025	-0.08	-0.0022	-0.15	-0.0413	-1.69						
COHAB	-0.0402	-0.71	0.0054	0.09	-0.0584	-1.58	0.0175	0.24	-0.0108	-0.29	0.0864	1.44						
ALCDDL	0.0058	0.08	0.0012	0.02	0.0508	1.03	-0.0054	-0.06	-0.0652	-1.86	0.0129	0.18						
DRGDLT	0.0307	0.33	-0.0629	-0.81	0.0592	0.99	0.0064	0.06	-0.0014	-0.03	-0.0320	-0.41						
Midwest	0.0165	0.19	-0.0959	-1.21	0.0995	0.92	0.1310	1.03	-0.0222	-0.54	-0.1288	-2.03						
West	-0.0429	-0.58	0.0281	0.30	0.0663	0.70	0.1251	0.98	-0.0103	-0.22	-0.1663	-2.56						
South	-0.0521	-0.69	0.0167	0.18	0.0930	0.88	0.1168	0.92	-0.0843	-2.17	-0.0901	-1.35						

Table C.16: Marginal Effect of Early-Onset Depression and Number of Episodes on Occupation-Limited

Men	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
NCS1 - Good	Professional	Managerial	Sales	Clerical	Technician	Service						
EDUC	0.0858	23.75	0.0367	8.96	0.0144	4.90	-0.0073	-1.76	-0.0645	-15.90	-0.0651	-15.20
SEXF	0.0263	2.45	-0.0527	-3.71	0.0207	2.00	0.2947	18.54	-0.2841	-19.02	-0.0050	-0.32
DEPEO	0.0218	1.02	0.0213	0.74	0.0062	0.31	-0.0597	-2.71	-0.0076	-0.25	0.0181	0.58
DEPEPS	-0.0008	-1.04	-0.0002	-0.26	-0.0008	-0.88	-0.00005	-0.05	-0.0001	-0.09	0.0019	2.48
COHAB	0.0173	1.55	0.0700	4.65	-0.0268	-2.36	-0.0699	-4.51	0.04386	2.90	-0.0344	-2.12
BLACK	-0.0519	-3.48	-0.0612	-2.68	-0.0174	-1.07	0.0009	0.04	0.01495	0.56	0.1147	3.81
HISPANIC	-0.0433	-2.28	-0.0260	-0.94	0.0080	0.36	0.0689	2.08	-0.0398	-1.55	0.0323	1.01
ALCDDL	-0.0325	-2.42	0.0156	0.78	-0.0139	-1.00	-0.0067	-0.31	0.0355	1.81	0.0020	0.10
DRGDLT	0.0311	1.30	-0.0065	-0.25	0.0088	0.42	-0.0356	-1.42	0.0292	1.12	-0.0270	-1.05
GADLTI	-0.0284	-1.32	-0.0073	-0.21	-0.0140	-0.61	0.0432	1.14	0.0171	0.45	-0.0107	-0.30
Midwest	0.0314	1.76	0.0068	0.29	-0.0128	-0.85	-0.0185	-0.87	0.0044	0.20	-0.0114	-0.50
West	0.0086	0.50	0.0335	1.33	-0.0022	-0.14	0.0231	0.97	-0.0258	-1.13	-0.0372	-1.59
South	0.0163	0.97	0.0541	2.27	-0.0064	-0.43	-0.0209	-1.02	-0.0036	-0.16	-0.0394	-1.83
EDUC	0.0727	16.4	0.0416	7.77	0.0172	5.39	0.0110	2.98	-0.0993	-14.86	-0.0432	-8.61
DEPEO	0.0333	1.02	-0.0114	-0.28	0.0360	1.21	0.0089	0.28	-0.0369	-0.68	-0.0299	-0.73
DEPEPS	-0.0005	-0.52	0.0005	0.41	-0.0039	-1.28	0.00006	0.07	0.0011	0.65	0.0027	2.70
COHAB	0.0183	1.33	0.0926	4.70	-0.0124	-1.11	-0.0597	-3.98	0.0565	2.25	-0.0953	-4.65
BLACK	-0.0661	-3.84	-0.0994	-3.54	-0.0113	-0.65	0.0328	1.17	-0.0084	-0.19	0.1524	3.65
HISPANIC	-0.0451	-2.07	-0.0081	-0.22	0.0041	0.19	0.0228	0.76	-0.0418	-0.94	0.0680	1.65
ALCDDL	-0.0298	-1.97	0.0203	0.86	-0.0128	-1.04	-0.0184	-1.18	0.0637	2.16	-0.0229	-1.01
DRGDLT	0.0117	0.47	-0.0243	-0.81	0.0182	0.87	-0.0041	-0.18	0.0225	0.57	-0.0240	-0.81
GADLTI	-0.0403	-1.67	0.0025	0.05	-0.0159	-0.71	-0.0198	-0.66	-0.0063	-0.10	0.0797	1.38
Midwest	0.0160	0.77	0.0297	0.92	-0.0016	-0.10	-0.0234	-1.35	-0.0434	-1.19	0.0227	0.73
West	0.0235	1.04	0.0503	1.43	0.0140	0.75	-0.0136	-0.74	-0.0619	-1.62	-0.0122	-0.39
South	0.0039	0.19	0.0770	2.38	0.0089	0.52	-0.0376	-2.22	-0.0404	-1.11	-0.0145	-0.50
EDUC	0.0913	16.12	0.0337	6.02	0.0067	1.41	-0.0402	-5.16	-0.0232	-5.85	-0.0683	-11.85
DEPEO	0.0175	0.65	0.0515	1.44	-0.0130	-0.51	-0.1269	-3.06	0.0059	0.24	0.0650	1.61
DEPEPS	-0.0004	-0.28	-7.30E-07	-5.0E-04	0.0008	0.80	-0.0002	-0.08	0.0003	0.33	-0.0005	-0.35
COHAB	0.0166	1.03	0.0292	1.47	-0.0364	-2.09	-0.0710	-2.55	0.0145	0.99	0.0472	2.22
BLACK	-0.0319	-1.47	-0.0191	-0.65	-0.0200	-0.86	-0.0246	-0.58	0.0308	1.17	0.0649	1.71
HISPANIC	-0.0356	-1.26	-0.0513	-1.55	0.0112	0.33	0.1260	2.29	-0.0424	-1.85	-0.0079	-0.19
ALCDDL	-0.0383	-1.83	-0.0187	-0.64	-0.0051	-0.20	0.0365	0.82	-0.0170	-0.83	0.0426	1.17
DRGDLT	0.0564	1.32	0.0181	0.44	-0.0142	-0.48	-0.0818	-1.63	0.0469	1.35	-0.0253	-0.69
GADLTI	-0.0048	-0.14	-0.0151	-0.39	-0.0089	-0.25	0.0872	1.42	0.0270	0.78	-0.0854	-2.55
Midwest	0.0462	1.68	-0.0207	-0.75	-0.0191	-0.90	-0.0151	-0.38	0.0548	1.97	-0.0460	-1.72
West	-0.0174	-0.77	0.0110	0.36	-0.0195	-0.88	0.0638	1.47	0.0114	0.42	-0.0494	-1.71
South	0.0221	0.92	0.0121	0.43	-0.0197	-0.95	0.0062	0.16	0.0272	1.13	-0.0479	-1.81

Table C.17: Marginal Effect of Early-Onset Depression and Number of Episodes on Occupation-Unlimited

NCS1 - Good	Men		Professional		Managerial		Sales		Clerical		Technician		Service	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
EDUC	0.0824	24.16	0.0372	9.57	0.0148	5.37	-0.0054	-1.38	-0.0634	-16.20	-0.0655	-15.98	-0.0655	-15.98
SEXF	0.0249	2.46	-0.0460	-3.40	0.0218	2.21	0.2956	19.38	-0.2880	-19.83	-0.0083	-0.56	-0.0083	-0.56
DEPEO	0.0172	0.88	0.0081	0.31	-0.0005	-0.02	-0.0410	-1.86	-0.0060	-0.21	0.0222	0.73	0.0222	0.73
DEPEPS	-0.0005	-1.01	0.0005	1.03	-0.0003	-0.66	-0.0009	-1.33	0.0005	0.99	0.0006	1.14	0.0006	1.14
COHAB	0.0123	1.17	0.0698	4.87	-0.0240	-2.24	-0.0670	-4.52	0.0465	3.13	-0.0378	-2.40	-0.0378	-2.40
BLACK	-0.0536	-3.91	-0.0559	-2.57	0.0213	1.42	0.0155	0.65	0.0094	0.36	0.1060	3.72	0.1060	3.72
HISPANIC	-0.0390	-2.17	-0.0278	-1.06	0.0204	0.93	0.0535	1.76	-0.0551	-2.30	0.0480	1.55	0.0480	1.55
ALCDDL	-0.0297	-2.34	0.0304	1.56	-0.0154	-1.17	-0.0101	-0.50	0.0337	1.76	-0.0088	-0.44	-0.0088	-0.44
DRGDLT	0.0345	1.51	-0.0134	-0.56	0.0050	0.26	-0.0276	-1.12	0.0270	1.07	-0.0255	-1.01	-0.0255	-1.01
GADLTI	-0.0340	-1.79	0.0144	0.43	-0.0082	-0.37	0.0267	0.79	0.0029	0.63	-0.0217	-0.65	-0.0217	-0.65
Midwest	0.0275	1.64	-0.0008	-0.04	-0.0077	-0.52	-0.0115	-0.56	0.0029	0.13	-0.0104	-0.47	-0.0104	-0.47
West	0.0060	0.37	0.0283	1.18	0.0026	0.16	0.0285	1.23	-0.0303	-1.35	-0.0350	-1.52	-0.0350	-1.52
South	0.0122	0.78	0.0554	2.45	-0.0066	-0.46	-0.0194	-0.99	-0.0045	-0.21	-0.0371	-1.77	-0.0371	-1.77
EDUC	0.0694	16.88	0.0420	8.47	0.0184	6.78	0.0102	3.00	-0.0953	-15.00	-0.0447	-9.38	-0.0447	-9.38
DEPEO	0.0261	0.87	-0.0281	-0.78	0.0273	0.99	0.0080	0.27	-0.0119	-0.23	-0.0213	-0.52	-0.0213	-0.52
DEPEPS	-0.0008	-1.33	0.0007	1.03	-0.0007	-1.16	-0.0007	-1.01	0.0007	0.72	0.0009	1.39	0.0009	1.39
COHAB	0.0146	1.12	0.0895	4.84	-0.0143	-1.30	-0.0585	-4.16	0.0677	2.79	-0.0990	-4.97	-0.0990	-4.97
BLACK	-0.0639	-3.89	-0.0961	-3.70	-0.0140	-0.83	0.0415	1.55	-0.0033	-0.08	0.1357	3.46	0.1357	3.46
HISPANIC	-0.0447	-2.20	-0.0172	-0.51	0.0078	0.35	0.0170	0.63	-0.0582	-1.37	0.0953	2.35	0.0953	2.35
ALCDDL	-0.0293	-2.06	0.0291	1.30	-0.0180	-1.53	-0.0184	-1.28	0.0667	2.37	-0.0301	-1.39	-0.0301	-1.39
DRGDLT	0.0173	0.71	-0.0320	-1.16	0.0163	0.79	-0.0046	-0.22	0.0260	0.69	-0.0231	-0.79	-0.0231	-0.79
GADLTI	-0.0434	-1.96	0.0206	0.43	-0.0217	-1.09	-0.0198	-0.71	-0.0076	-0.13	0.0718	1.31	0.0718	1.31
Midwest	0.0092	0.47	0.0182	0.61	-0.0012	-0.07	-0.0205	-1.27	-0.0388	-1.09	0.0331	1.07	0.0331	1.07
West	0.0162	0.78	0.0419	1.27	0.0146	0.79	-0.0129	-0.75	-0.0568	-1.51	-0.0030	-0.09	-0.0030	-0.09
South	-0.0011	-0.06	0.0833	2.65	0.0032	0.19	-0.0393	-2.51	-0.0394	-1.12	-0.0066	-0.23	-0.0066	-0.23
EDUC	0.0868	16.15	0.0322	5.95	0.0066	1.45	-0.0350	-4.68	-0.0237	-6.30	-0.0669	-12.06	-0.0669	-12.06
DEPEO	0.0117	0.50	0.0361	1.12	-0.0190	-0.83	-0.0880	-2.18	-0.0033	-0.15	0.0626	1.63	0.0626	1.63
DEPEPS	0.0003	0.37	0.0005	0.65	0.0002	0.32	-0.0013	-1.06	0.0006	1.29	-0.0002	-0.28	-0.0002	-0.28
COHAB	0.0095	0.64	0.0318	1.67	-0.0283	-1.72	-0.0669	-2.05	0.0062	0.43	0.0477	2.31	0.0477	2.31
BLACK	-0.0372	-1.95	-0.0115	-0.40	-0.0244	-1.12	-0.0048	-0.12	0.0153	0.66	0.0626	1.74	0.0626	1.74
HISPANIC	-0.0248	-0.91	-0.0396	-1.20	0.0338	0.96	0.0919	1.77	-0.0530	-2.71	-0.0084	-0.21	-0.0084	-0.21
ALCDDL	-0.0310	-1.55	0.0047	0.16	0.0015	0.06	0.0256	0.60	-0.0273	-1.46	0.0264	0.77	0.0264	0.77
DRGDLT	0.0509	1.29	0.0169	0.44	-0.0178	-0.63	-0.0607	-1.23	0.0381	1.15	-0.0275	-0.76	-0.0275	-0.76
GADLTI	-0.0139	-0.48	0.0059	0.15	0.0056	0.16	0.0560	1.00	0.0358	1.08	-0.0894	-2.89	-0.0894	-2.89
Midwest	0.0462	1.79	-0.0222	-0.83	-0.0111	-0.52	-0.0051	-0.13	0.0479	1.86	-0.0557	-2.17	-0.0557	-2.17
West	-0.0149	-0.71	0.0108	0.37	-0.0125	-0.57	0.0727	1.75	-0.0024	-0.10	-0.0537	-1.94	-0.0537	-1.94
South	0.0192	0.88	0.0107	0.40	-0.0141	-0.69	0.0114	0.31	0.0233	1.05	-0.0506	-1.99	-0.0506	-1.99

Table C.18: Marginal Effect of Age of Onset and Recency of Episodes on Occupation-Limited

Men	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
NCSI- Good	Professional		Managerial		Sales		Clerical		Technician		Service	
EDUC	0.1043	7.58	0.0056	0.38	0.0089	0.79	-0.0090	-0.60	-0.0522	-4.34	-0.0576	-4.00
SEXF	0.0184	0.41	0.0023	0.04	-0.0176	-0.46	0.1802	3.60	-0.2188	-3.99	0.0355	0.69
DEPEOA	0.0143	2.36	0.0118	1.72	0.0019	0.39	-0.0101	-1.55	-0.0069	-1.32	-0.0110	-1.69
DEPREC	0.0291	1.44	-0.0064	-0.30	0.0038	0.24	0.0003	0.01	0.0107	0.58	-0.0374	-1.76
COHAB	0.0201	0.43	-0.0203	-0.39	-0.0479	-1.22	0.0057	0.11	0.0197	0.44	0.0228	0.43
ALCDLT	-0.0369	-0.72	0.0283	0.47	-0.0166	-0.40	-0.0106	-0.18	-0.0358	-0.77	0.0717	1.14
DRGDLT	0.0337	0.49	-0.0484	-0.78	0.0437	0.78	-0.0238	-0.36	0.0372	0.64	-0.0424	-0.69
Midwest	0.0670	0.84	-0.0092	-0.11	-0.0030	-0.05	0.0252	0.33	0.0353	0.52	-0.1152	-1.96
West	0.0525	0.71	0.1207	1.29	0.0183	0.32	-0.0500	-0.70	-0.0258	-0.44	-0.1157	-1.89
South	0.0097	0.14	0.1674	1.63	-0.0026	-0.05	-0.0361	-0.49	-0.0593	-1.03	-0.0791	-1.27
EDUC	0.1120	4.50	-0.0014	-0.07	0.0163	0.82	-0.0085	-0.61	-0.0941	-3.34	-0.0243	-1.12
DEPEOA	0.0092	1.10	0.0310	2.74	-0.0039	-0.50	0.0092	1.23	-0.0231	-1.82	-0.0223	-2.37
DEPREC	-0.0029	-0.10	-0.0196	-0.63	0.0016	0.06	0.0246	1.06	0.0181	0.40	-0.0218	-0.64
COHAB	0.1492	1.96	0.0131	0.17	0.0154	0.22	-0.0546	-0.99	0.0214	0.19	-0.1445	-1.63
ALCDLT	-0.0246	-0.33	-0.0088	-0.10	-0.0703	-0.90	-0.0553	-0.95	0.0165	0.14	0.1426	1.36
DRGDLT	0.0203	0.23	0.0504	0.49	-0.0273	-0.32	-0.0297	-0.47	0.0716	0.57	-0.0853	-0.95
Midwest	0.2498	1.27	0.0602	0.32	-0.0875	-1.30	-0.0807	-1.76	-0.0060	-0.03	-0.1358	-1.63
West	0.2099	1.44	0.1741	0.97	-0.0315	-0.44	-0.0990	-1.87	-0.1559	-1.08	-0.0976	-1.06
South	0.1116	0.76	0.2694	1.23	-0.0747	-1.14	-0.0741	-1.66	-0.1103	-0.70	-0.1219	-1.39
EDUC	0.1073	5.67	0.0238	1.22	0.0027	0.25	-0.0206	-0.89	-0.0316	-2.48	-0.0816	-4.19
DEPEOA	0.0189	2.15	0.0003	0.03	0.0062	1.30	-0.0229	-2.24	-0.0019	-0.34	-0.0007	-0.07
DEPREC	0.0385	1.35	0.0020	0.07	0.0059	0.40	-0.0107	-0.32	0.0083	0.47	-0.0440	-1.61
COHAB	-0.0458	-0.71	-0.0468	-0.70	-0.0745	-1.84	0.0256	0.33	0.0083	0.20	0.1333	2.02
ALCDLT	-0.0400	-0.55	-0.0008	-0.01	0.0450	0.92	0.0043	0.05	-0.0609	-1.55	0.0524	0.66
DRGDLT	0.0214	0.21	-0.1051	-1.39	0.0824	1.20	0.0005	0.004	0.0144	0.23	-0.0136	-0.16
Midwest	-0.0259	-0.30	-0.0725	-0.78	0.0884	0.90	0.1435	1.15	-0.0098	-0.20	-0.1236	-1.72
West	-0.0161	-0.18	0.0690	0.61	0.0887	0.84	-0.0045	-0.04	0.0107	0.18	-0.1479	-2.01
South	-0.0498	-0.57	0.0821	0.71	0.0880	0.79	0.0084	0.07	-0.0855	-1.86	-0.0431	-0.52

Table C.19: Marginal Effect of Age of Onset and Recency of Episodes on Occupation-Unlimited

Men	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
NCS1- Good	Professional		Managerial		Sales		Clerical		Technician		Service	
EDUC	0.1000	8.05	0.0147	1.04	0.0066	0.65	-0.0135	-0.96	-0.0527	-4.58	-0.0551	-4.07
SEXF	0.0272	0.72	0.0142	0.30	-0.0134	-0.38	0.2187	4.69	-0.2635	-4.93	0.0168	0.34
DEPEOA	0.0134	2.57	0.0087	1.39	0.0037	0.82	-0.0109	-1.84	-0.0073	-1.49	-0.0075	-1.25
DEPREC	0.0174	1.02	0.0002	0.01	0.0001	0.01	0.0169	0.81	0.0063	0.35	-0.0408	-1.99
COHAB	0.0275	0.68	0.0028	0.06	-0.0368	-1.01	0.0087	0.18	0.0079	0.18	-0.0101	-0.20
ALCDLT	-0.0114	-0.24	0.0133	0.23	-0.0013	-0.03	-0.0331	-0.58	-0.0122	-0.26	0.0446	0.75
DRGDLT	0.0582	0.90	-0.0312	-0.50	0.0364	0.70	-0.0173	-0.27	0.0118	0.22	-0.0579	-0.99
Midwest	0.0688	0.95	-0.0282	-0.35	-0.0044	-0.08	0.0386	0.48	0.0346	0.52	-0.1094	-1.90
West	0.0382	0.60	0.1072	1.23	0.0145	0.27	0.0164	0.21	-0.0520	-0.94	-0.1244	-2.13
South	-0.0005	-0.01	0.1228	1.36	0.0028	0.05	0.0305	0.39	-0.0563	-1.01	-0.0994	-1.71
EDUC	0.0966	4.15	0.0055	0.27	0.0168	0.97	-0.0052	-0.42	-0.0934	-3.34	-0.0203	-0.97
DEPEOA	0.0093	1.35	0.0281	2.76	-0.0025	-0.36	0.0083	1.32	-0.0235	-1.91	-0.0198	-2.23
DEPREC	-0.0074	-0.33	-0.0115	-0.39	0.0021	0.09	0.0214	1.07	0.0248	0.56	-0.0295	-0.89
COHAB	0.1439	2.16	-0.0099	-0.13	0.0182	0.30	-0.0446	-0.93	0.0538	0.49	-0.1613	-1.85
ALCDLT	-0.0189	-0.31	-0.0518	-0.66	-0.0730	-1.04	-0.0550	-1.04	0.0995	0.85	0.0993	1.03
DRGDLT	0.0533	0.69	0.0545	0.55	-0.0152	-0.20	-0.0211	-0.38	0.0411	0.33	-0.1126	-1.28
Midwest	0.1647	1.05	0.0647	0.35	-0.0827	-1.42	-0.0754	-1.79	0.0259	0.15	-0.0972	-1.04
West	0.1826	1.35	0.1903	1.00	-0.0231	-0.37	-0.0786	-1.77	-0.1985	-1.33	-0.0727	-0.76
South	0.0876	0.76	0.2564	1.25	-0.0700	-1.19	-0.0686	-1.62	-0.0740	-0.44	-0.1315	-1.45
EDUC	0.1047	6.26	0.0281	1.56	-0.0020	-0.24	-0.0307	-1.44	-0.0315	-2.93	-0.0686	-3.96
DEPEOA	0.0155	2.06	-0.0016	-0.20	0.0082	2.06	-0.0227	-2.49	-0.0029	-0.63	0.0034	0.43
DEPREC	0.0226	0.94	0.0065	0.24	-0.0019	-0.17	0.0171	0.54	0.0006	0.04	-0.0449	-1.73
COHAB	-0.0412	-0.73	0.0045	0.07	-0.0525	-1.61	0.0153	0.21	-0.0117	-0.31	0.0856	1.38
ALCDLT	0.0048	0.07	0.0030	0.04	0.0691	1.41	-0.0280	-0.32	-0.0692	-1.93	0.0203	0.28
DRGDLT	0.0361	0.39	-0.0658	-0.82	0.0602	1.09	-0.0032	-0.03	0.0008	0.01	-0.0281	-0.34
Midwest	-0.0016	-0.02	-0.0979	-1.19	0.0880	0.91	0.1686	1.30	-0.0184	-0.42	-0.1388	-2.12
West	-0.0345	-0.46	0.0278	0.29	0.0713	0.80	0.1185	0.92	-0.0093	-0.19	-0.1739	-2.61
South	-0.0640	-0.89	0.0187	0.20	0.0984	0.97	0.1249	0.97	-0.0844	-2.11	-0.0936	-1.36

Table C.20: Marginal Effect of Early-Onset Depression on Occupational Job Zone-Limited

ALL	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
NCS1 Good	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.03459	-18.72	-0.05818	-31.01	0.01225	11.12	0.06195	30.55	0.01857	12.98
EDUC	-0.0227	15.55	-0.0966	23.92	0.0254	9.67	0.0828	24.05	0.0112	11.42
SEXF	0.0095	2.98	0.0399	3.05	-0.0107	-2.90	-0.0341	-3.05	-0.0046	-2.99
DEPEO	-0.0101	-2.18	-0.0465	-2.02	0.0091	2.91	0.0416	1.94	0.0059	1.81
COHAB	-0.0194	-5.71	-0.0800	-6.19	0.0222	5.20	0.0681	6.23	0.0092	5.60
BLACK	0.0154	2.40	0.0582	2.73	-0.0198	-2.20	-0.0476	-2.85	-0.0061	-2.92
HISPANIC	0.0132	1.84	0.0503	2.06	-0.0169	-1.69	-0.0413	-2.14	-0.0053	-2.22
ALCDLT	0.0038	0.92	0.0158	0.94	-0.0044	-0.89	-0.0134	-0.95	-0.0018	-0.96
DRGDLT	0.0036	0.65	0.0148	0.67	-0.0042	-0.63	-0.0125	-0.68	-0.0017	-0.69
GADLT1	0.0073	0.94	0.0291	1.00	-0.0089	-0.87	-0.0243	-1.02	-0.0032	-1.05
Midwest	-0.0005	-0.11	-0.0021	-0.11	0.0005	0.11	0.0018	0.11	0.0002	0.11
West	-0.0042	-0.94	-0.0182	-0.92	0.0044	0.99	0.0157	0.91	0.0022	0.90
South	-0.0076	-1.88	-0.0334	-1.84	0.0080	1.98	0.0290	1.81	0.0040	1.76
EDUC	-0.0230	11.74	-0.0933	17.57	0.0191	5.87	0.0859	17.89	0.0113	8.66
DEPEO	-0.0152	-2.25	-0.0700	-2.02	0.0066	2.68	0.0686	1.89	0.0100	1.67
COHAB	-0.0305	-5.96	-0.1177	-6.84	0.0262	4.67	0.1078	6.89	0.0142	5.57
BLACK	0.0279	2.57	0.0922	3.21	-0.0308	-2.27	-0.0798	-3.39	-0.0095	-3.45
HISPANIC	0.0147	1.50	0.0533	1.69	-0.0150	-1.32	-0.0472	-1.75	-0.0058	-1.83
ALCDLT	-0.0038	-0.81	-0.0158	-0.80	0.0030	0.84	0.0146	0.79	0.0019	0.78
DRGDLT	0.0082	1.12	0.0316	1.19	-0.0077	-1.02	-0.0285	-1.22	-0.0036	-1.25
GADLT1	0.0145	1.11	0.0522	1.26	-0.0149	-0.98	-0.0461	-1.31	-0.0057	-1.38
Midwest	-0.0051	-0.86	-0.0210	-0.84	0.0039	0.91	0.0195	0.83	0.0026	0.82
West	-0.0101	-1.72	-0.0433	-1.64	0.0070	2.04	0.0408	1.60	0.0056	1.52
South	-0.0140	-2.51	-0.0598	-2.43	0.0097	2.74	0.0564	2.38	0.0077	2.21
EDUC	-0.0220	10.11	-0.1032	16.36	0.0351	7.87	0.0791	16.09	0.0109	7.42
DEPEO	-0.0072	-1.20	-0.0358	-1.14	0.0105	1.33	0.0284	1.10	0.0041	1.05
COHAB	-0.0070	-1.59	-0.0325	-1.63	0.0113	1.57	0.0248	1.64	0.0034	1.61
BLACK	0.0055	0.76	0.0248	0.80	-0.0092	-0.73	-0.0186	-0.81	-0.0025	-0.82
HISPANIC	0.0137	1.30	0.0569	1.48	-0.0239	-1.24	-0.0413	-1.55	-0.0054	-1.60
ALCDLT	0.0245	2.53	0.0950	3.14	-0.0431	-2.47	-0.0676	-3.35	-0.0087	-3.27
DRGDLT	-0.0036	-0.46	-0.0176	-0.45	0.0055	0.49	0.0137	0.44	0.0019	0.43
GADLT1	-0.0007	-0.08	-0.0033	-0.08	0.0011	0.08	0.0025	0.08	0.0004	0.08
Midwest	0.0033	0.53	0.0152	0.54	-0.0054	-0.53	-0.0116	-0.55	-0.0016	-0.55
West	0.0021	0.32	0.0096	0.32	-0.0034	-0.31	-0.0073	-0.32	-0.0010	
South	0.0003	0.05	0.0013	0.05	-0.0004	-0.05	-0.0010		-0.0001	-0.05

Table C.21: Marginal Effect of Early-Onset Depression on Occupational Job Zone-Unlimited

ALL	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
NCS1 Good	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.0227	-16.23	-0.0953	-24.52	0.0279	11.09	0.0792	24.73	0.0109	11.77
SEXF	0.0095	3.04	0.0396	3.12	-0.0118	-2.99	-0.0328	-3.12	-0.0045	-3.05
DEPEO	-0.0092	-2.02	-0.0417	-1.88	0.0098	2.43	0.0359	1.82	0.0052	1.71
COHAB	-0.0189	-5.70	-0.0769	-6.15	0.0235	5.37	0.0636	6.18	0.0087	5.60
BLACK	0.0181	2.83	0.0660	3.28	-0.0250	-2.65	-0.0524	-3.43	-0.0067	-3.49
HISPANIC	0.0126	1.84	0.0477	2.05	-0.0171	-1.72	-0.0382	-2.13	-0.0050	-2.20
ALCDLT	0.0009	0.23	0.0038	0.23	-0.0011	-0.23	-0.0031	-0.23	-0.0004	-0.23
DRGDLT	0.0041	0.75	0.0166	0.78	-0.0052	-0.73	-0.0136	-0.79	-0.0018	-0.80
GADLT1	0.0036	0.51	0.0146	0.53	-0.0046	-0.50	-0.0120	-0.54	-0.0016	-0.54
Midwest	0.0002	0.06	0.0010	0.06	-0.0003	-0.06	-0.0008	-0.06	-0.0001	-0.06
West	-0.0041	-0.94	-0.0177	-0.92	0.0049	0.98	0.0149	0.91	0.0021	0.90
South	-0.0080	-2.00	-0.0344	-1.96	0.0093	2.09	0.0290	1.93	0.0040	1.87
EDUC	-0.0228	-12.28	-0.0912	-17.99	0.0216	7.02	0.0817	18.44	0.0106	8.78
DEPEO	-0.0131	-1.90	-0.0586	-1.72	0.0087	3.21	0.0552	1.64	0.0077	1.49
COHAB	-0.0301	-6.01	-0.1143	-6.86	0.0293	5.09	0.1020	6.91	0.0132	5.61
BLACK	0.0300	2.79	0.0958	3.56	-0.0354	-2.56	-0.0810	-3.74	-0.0095	-3.75
HISPANIC	0.0160	1.64	0.0565	1.87	-0.0179	-1.49	-0.0487	-1.94	-0.0059	-2.02
ALCDLT	-0.0061	-1.34	-0.0249	-1.31	0.0055	1.39	0.0226	1.30	0.0030	1.27
DRGDLT	0.0087	1.21	0.0329	1.29	-0.0092	-1.12	-0.0289	-1.32	-0.0036	-1.35
GADLT1	0.0132	1.07	0.0473	1.20	-0.0146	-0.97	-0.0409	-1.24	-0.0050	-1.30
Midwest	-0.0047	-0.81	-0.0193	-0.80	0.0043	0.85	0.0175	0.79	0.0023	0.78
West	-0.0113	-1.96	-0.0481	-1.86	0.0092	2.30	0.0443	1.81	0.0060	1.71
South	-0.0149	-2.71	-0.0628	-2.63	0.0123	2.96	0.0576	2.57	0.0078	2.38
EDUC	-0.0222	-10.54	-0.1033	-16.85	0.0378	8.73	0.0767	16.56	0.0111	7.82
DEPEO	-0.0072	-1.25	-0.0355	-1.19	0.0114	1.36	0.0272	1.15	0.0041	1.10
COHAB	-0.0067	-1.58	-0.0310	-1.61	0.0115	1.56	0.0229	1.61	0.0033	1.59
BLACK	0.0084	1.15	0.0366	1.24	-0.0150	-1.11	-0.0264	-1.27	-0.0037	-1.29
HISPANIC	0.0105	1.10	0.0445	1.21	-0.0189	-1.06	-0.0317	-1.26	-0.0044	-1.3
ALCDLT	0.0202	2.24	0.0799	2.69	-0.0366	-2.20	-0.0558	-2.83	-0.0076	-2.83
DRGDLT	-0.0039	-0.50	-0.0187	-0.49	0.0063	0.52	0.0141	0.48	0.0021	0.47
GADLT1	-0.0055	-0.74	-0.0272	-0.70	0.0089	0.79	0.0208	0.68	0.0031	0.66
Midwest	0.0043	0.70	0.0197	0.72	-0.0075	-0.69	-0.0144	-0.73	-0.0021	-0.73
West	0.0036	0.55	0.0164	0.57	-0.0062	-0.54	-0.0120	-0.57	-0.0017	-0.58
South	0.0006	0.11	0.0028	0.11	-0.0010	-0.11	-0.0021	-0.11	-0.0003	-0.11

Table C.22: Marginal Effect of Age of Onset Depression on Occupational Job Zone-Limited

NCS1 Good Male	dy/dx Zone 1	z	dy/dx Zone 2	z	dy/dx Zone 3	z	dy/dx Zone 4	z	dy/dx Zone 5	z
EDUC	-0.0119	-3.48	-0.0781	-5.97	0.0040	0.59	0.0126	5.93	0.0113	3.42
SEXF	0.0134	1.86	0.0900	2.06	-0.0012	-0.15	0.0442	-2.00	-0.0140	-1.74
DEPEOA	-0.0016	-1.75	-0.0102	-1.92	0.0005	0.57	0.0051	1.91	0.0015	1.73
COHAB	0.0065	0.96	0.0428	0.99	-0.0021	-0.51	0.0413	-0.99	-0.0062	-0.96
BLACK	0.0036	0.26	0.0228	0.27	-0.0020	-0.19	0.0770	-0.28	-0.0031	-0.28
HISPANIC	0.0031	0.21	0.0194	0.22	-0.0016	-0.16	0.0806	-0.23	-0.0027	-0.23
ALCDLT	-0.0064	-0.88	-0.0432	-0.88	0.0010	0.26	0.0488	0.86	0.0066	0.83
DRGDLT	0.0192	1.56	0.1103	1.88	-0.0171	-0.99	0.0490	-2.01	-0.0139	-1.90
GADLT1	-0.0006	-0.08	-0.0039	-0.08	0.0002	0.08	0.0500	0.08	0.0006	0.08
Midwest	-0.0062	-0.70	-0.0423	-0.68	0.0005	0.11	0.0624	0.67	0.0066	0.63
West	-0.0111	-1.27	-0.0766	-1.26	-0.0011	-0.13	0.0628	1.22	0.0124	1.09
South	-0.0171	-2.02	-0.1222	-2.12	-0.0097	-0.60	0.0640	1.98	0.0222	1.58
EDUC	-0.0072	-1.86	-0.0723	-3.57	-0.0098	-0.94	0.0770	3.58	0.0122	2.27
DEPEOA	-0.0012	-1.24	-0.0121	-1.53	-0.0016	-0.80	0.0129	1.51	0.0020	1.32
COHAB	-0.0014	-0.20	-0.0141	-0.20	-0.0019	-0.20	0.0151	0.20	0.0024	0.20
BLACK	-0.0058	-0.51	-0.0634	-0.48	-0.0167	-0.31	0.0726	0.45	0.0132	0.38
HISPANIC	-0.0007	-0.05	-0.0066	-0.05	-0.0010	-0.05	0.0071	0.05	0.0011	0.05
ALCDLT	-0.0060	-0.73	-0.0606	-0.78	-0.0095	-0.57	0.0655	0.77	0.0107	0.72
DRGDLT	0.0160	1.20	0.1443	1.60	0.0058	0.30	-0.1446	-1.68	-0.0215	-1.49
GADLT1	0.0026	0.28	0.0254	0.29	0.0027	0.36	-0.0266	-0.30	-0.0041	-0.30
Midwest	-0.0101	-0.11	-0.1105	-1.18	-0.0305	-0.72	0.1272	1.11	0.0240	0.87
West	-0.0190	-1.60	-0.1987	-2.36	-0.0522	-1.28	0.2251	2.30	0.0448	1.51
South	-0.0147	-1.46	-0.1612	-1.87	-0.0498	-1.08	0.1876	1.78	0.0381	1.23
EDUC	-0.0165	-2.99	-0.0894	-4.94	0.0155	1.47	0.0790	4.89	0.0114	2.58
DEPEOA	-0.0015	-1.06	-0.0081	-1.11	0.0014	0.89	0.0072	1.11	0.0010	1.04
COHAB	0.0122	1.12	0.0655	1.18	-0.0112	-0.94	-0.0581	-1.17	-0.0084	-1.08
BLACK	0.0142	0.59	0.0677	0.67	-0.0185	-0.49	-0.0559	-0.72	-0.0075	-0.75
HISPANIC	0.0071	0.26	0.0358	0.28	-0.0083	-0.22	-0.0303	-0.29	-0.0042	-0.30
ALCDLT	-0.0061	-0.53	-0.0338	-0.52	0.0049	0.57	0.0304	0.51	0.0045	0.49
DRGDLT	0.0132	0.73	0.0651	0.81	-0.0162	-0.60	-0.0546	-0.85	-0.0075	-0.85
GADLT1	-0.0043	-0.37	-0.0240	-0.36	0.0036	0.42	0.0216	0.36	0.0032	0.35
Midwest	-0.0002	-0.01	-0.0010	-0.01	0.0001	0.01	0.0009	0.01	0.0001	0.01
West	0.0057	0.33	0.0297	0.34	-0.0060	-0.30	-0.0258	-0.35	-0.0036	-0.35
South	-0.0149	-1.13	-0.0872	-1.09	0.0072	0.71	0.0821	1.03	0.0128	0.90

Table C.23: Marginal Effect of Age of Onset Depression on Occupational Job Zone-Unlimited

NCS1 Good Male	dy/dx Zone 1	z	dy/dx Zone 2	z	dy/dx Zone 3	z	dy/dx Zone 4	z	dy/dx Zone 5	z
EDUC	-0.0118	-3.67	-0.0805	-6.42	0.0084	1.30	0.0712	6.33	0.0128	3.83
SEXF	0.0089	1.40	0.0622	1.46	-0.0048	-0.91	-0.0560	-1.43	-0.0103	-1.34
DEPEOA	-0.0013	-1.64	-0.0087	-1.77	0.0009	1.07	0.0077	1.76	0.0014	1.65
COHAB	0.0025	0.40	0.0169	0.40	-0.0017	-0.39	-0.0150	-0.40	-0.0027	-0.40
BLACK	0.0111	0.71	0.0673	0.82	-0.0134	-0.55	-0.0558	-0.87	-0.0092	-0.92
HISPANIC	0.0059	0.42	0.0373	0.45	-0.0059	-0.33	-0.0318	-0.46	-0.0054	-0.48
ALCDLT	-0.0069	-1.00	-0.0480	-1.00	0.0036	0.83	0.0432	0.98	0.0080	0.94
DRGDLT	0.0123	1.19	0.0765	1.35	-0.0132	-0.90	-0.0646	-1.41	-0.0110	-1.41
GADLT1	-0.0027	-0.39	-0.0187	-0.39	0.0016	0.45	0.0167	0.38	0.0030	0.37
Midwest	-0.0043	-0.50	-0.0301	-0.48	0.0023	0.59	0.0271	0.48	0.0050	0.46
West	-0.0076	-0.91	-0.0541	-0.90	0.0033	0.75	0.0492	0.87	0.0092	0.82
South	-0.0140	-1.75	-0.1024	-1.79	0.0018	0.20	0.0958	1.70	0.0188	1.46
EDUC	-0.0060	-1.86	-0.0758	-3.77	-0.0007	-0.08	0.0719	3.76	0.0106	2.27
DEPEOA	-0.0011	-1.30	-0.0133	-1.64	-0.0001	-0.08	0.0126	1.62	0.0019	1.39
COHAB	-0.0029	-0.49	-0.0364	-0.50	-0.0003	-0.07	0.0346	0.50	0.0051	0.49
BLACK	-0.0006	-0.05	-0.0079	-0.05	-0.0002	-0.03	0.0076	0.05	0.0011	0.05
HISPANIC	0.0038	0.30	0.0453	0.32	-0.0024	-0.15	-0.0410	-0.34	-0.0057	-0.35
ALCDLT	-0.0041	-0.61	-0.0517	-0.65	-0.0010	-0.15	0.0495	0.64	0.0074	0.62
DRGDLT	0.0105	1.06	0.1212	1.34	-0.0068	-0.39	-0.1096	-1.38	-0.0153	-1.28
GADLT1	0.0022	0.31	0.0274	0.32	-0.0004	-0.08	-0.0255	-0.32	-0.0037	-0.33
Midwest	-0.0055	-0.70	-0.0740	-0.70	-0.0062	-0.32	0.0739	0.67	0.0118	0.59
West	-0.0159	-1.61	-0.2152	-2.44	-0.0346	-0.93	0.2238	2.30	0.0420	1.50
South	-0.0113	-1.33	-0.1542	-1.62	-0.0202	-0.67	0.1583	1.53	0.0275	1.15
EDUC	-0.0168	-3.20	-0.0911	-5.38	0.0166	1.66	0.0767	5.27	0.0146	3.10
DEPEOA	-0.0010	-0.78	-0.0051	-0.80	0.0009	0.73	0.0043	0.80	0.0008	0.79
COHAB	0.0069	0.70	0.0373	0.71	-0.0067	-0.67	-0.0315	-0.71	-0.0060	-0.70
BLACK	0.0224	0.87	0.0998	1.08	-0.0323	-0.75	-0.0766	-1.18	-0.0133	-1.22
HISPANIC	0.0056	0.24	0.0287	0.25	-0.0066	-0.21	-0.0235	-0.26	-0.0043	-0.27
ALCDLT	-0.0083	-0.77	-0.0470	-0.75	0.0067	0.83	0.0406	0.74	0.0080	0.70
DRGDLT	0.0032	0.22	0.0171	0.22	-0.0035	-0.20	-0.0142	-0.23	-0.0027	-0.23
GADLT1	-0.0102	-0.98	-0.0580	-0.97	0.0074	1.01	0.0506	0.93	0.0101	0.86
Midwest	-0.0020	-0.14	-0.0109	-0.14	0.0019	0.15	0.0092	0.14	0.0018	0.14
West	0.0139	0.78	0.0695	0.87	-0.0168	-0.67	-0.0563	-0.90	-0.0103	-0.91
South	-0.0108	-0.85	-0.0613	-0.82	0.0079	0.92	0.0534	0.80	0.0107	0.74

Table C.24: Marginal Effect of Number of Episodes on Occupational Job Zone-Limited

NCSI Good	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Female	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.0228	15.56	-0.0969	23.99	0.0254	9.67	0.0831	24.12	0.0112	11.43
SEXF	0.0089	2.81	0.0374	2.88	-0.0100	-2.74	-0.0320	-2.88	-0.0043	-2.83
DEPEPS	0.0002	1.19	0.0008	1.19	-0.0002	-1.18	-0.0007	-1.19	-0.0001	-1.19
COHAB	-0.0190	-5.60	-0.0782	-6.06	0.0217	5.11	0.0666	6.09	0.0090	5.50
BLACK	0.0156	2.43	0.0588	2.76	-0.0201	-2.22	-0.0482	-2.88	-0.0062	-2.96
HISPANIC	0.0129	1.80	0.0492	2.02	-0.0164	-1.65	-0.0405	-2.10	-0.0052	-2.17
ALCDLT	0.0028	0.68	0.0117	0.69	-0.0032	-0.67	-0.0099	-0.70	-0.0013	-0.70
DRGDLT	0.0018	0.33	0.0074	0.34	-0.0020	-0.32	-0.0063	-0.34	-0.0008	-0.34
GADLT1	0.0030	0.42	0.0123	0.43	-0.0035	-0.40	-0.0104	-0.43	-0.0014	-0.44
Midwest	-0.0006	-0.14	-0.0025	-0.14	0.0007	0.14	0.0021	0.14	0.0003	0.13
West	-0.0045	-1.01	-0.0195	-0.99	0.0047	1.07	0.0169	0.98	0.0023	0.96
South	-0.0076	-1.86	-0.0331	-1.82	0.0080	1.97	0.0288	1.80	0.0040	1.74
EDUC	-0.0230	11.74	-0.0937	17.63	0.0191	5.86	0.0863	17.95	0.0113	8.67
DEPEPS	0.0003	1.64	0.0013	1.65	-0.0003	-1.59	-0.0012	-1.65	-0.0002	-1.62
COHAB	-0.0297	-5.83	-0.1149	-6.67	0.0255	4.60	0.1053	6.71	0.0138	5.48
BLACK	0.0287	2.61	0.0943	3.30	-0.0317	-2.31	-0.0817	-3.48	-0.0097	-3.53
HISPANIC	0.0138	1.42	0.0504	1.59	-0.0139	-1.25	-0.0447	-1.65	-0.0055	-1.71
ALCDLT	-0.0045	-0.95	-0.0185	-0.93	0.0035	0.99	0.0172	0.93	0.0023	0.91
DRGDLT	0.0048	0.68	0.0187	0.71	-0.0043	-0.64	-0.0170	-0.72	-0.0022	-0.73
GADLT1	0.0064	0.56	0.0247	0.59	-0.0060	-0.51	-0.0223	-0.60	-0.0028	-0.62
Midwest	-0.0049	-0.83	-0.0203	-0.81	0.0038	0.88	0.0188	0.81	0.0025	0.79
West	-0.0107	-1.84	-0.0461	-1.75	0.0073	2.20	0.0436	1.71	0.0060	1.61
South	-0.0140	-2.51	-0.0599	-2.44	0.0097	2.74	0.0565	2.38	0.0077	2.21
EDUC	-0.0221	10.14	-0.1037	16.43	0.0352	7.87	0.0796	16.15	0.0110	7.43
DEPEPS	-0.0003	-1.00	-0.0015	-1.00	0.0005	0.99	0.0011	1.00	0.0002	0.99
COHAB	-0.0067	-1.54	-0.0312	-1.57	0.0108	1.52	0.0239	1.58	0.0033	1.55
BLACK	0.0057	0.78	0.0254	0.81	-0.0094	-0.75	-0.0191	-0.83	-0.0026	-0.85
HISPANIC	0.0141	1.32	0.0583	1.51	-0.0245	-1.26	-0.0423	-1.59	-0.0055	-1.64
ALCDLT	0.0240	2.50	0.0933	3.09	-0.0422	-2.44	-0.0666	-3.29	-0.0086	-3.22
DRGDLT	-0.0041	-0.53	-0.0199	-0.51	0.0062	0.56	0.0156	0.50	0.0022	0.49
GADLT1	-0.0026	-0.32	-0.0127	-0.31	0.0041	0.33	0.0099	0.31	0.0014	0.31
Midwest	0.0031	0.51	0.0144	0.51	-0.0051	-0.50	-0.0110	-0.52	-0.0015	-0.52
West	0.0021	0.32	0.0096	0.32	-0.0033	-0.31	-0.0073	-0.32	-0.0010	
South	0.0003	0.06	0.0015	0.06	-0.0005	-0.06	-0.0012	-0.06	-0.0002	-0.06

Table C.25: Marginal Effect of Number of Episodes on Occupational Job Zone-Unlimited

NCS1 Good	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Female	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.0228	-16.25	-0.0955	-24.59	0.0279	11.08	0.0795	24.81	0.0109	11.77
SEXF	0.0089	2.86	0.0369	2.92	-0.0110	-2.81	-0.0306	-2.92	-0.0042	-2.87
DEPEPS	0.0001	0.55	0.0003	0.55	-0.0001	-0.55	-0.0002	-0.55	0.0000	-0.55
COHAB	-0.0186	-5.63	-0.0757	-6.07	0.0231	5.30	0.0626	6.09	0.0085	5.54
BLACK	0.0183	2.85	0.0665	3.31	-0.0252	-2.67	-0.0528	-3.46	-0.0068	-3.53
HISPANIC	0.0125	1.82	0.0473	2.03	-0.0169	-1.71	-0.0379	-2.10	-0.0049	-2.17
ALCDLT	0.0001	0.03	0.0005	0.03	-0.0002	-0.03	-0.0004	-0.03	-0.0001	-0.03
DRGDLT	0.0028	0.52	0.0114	0.53	-0.0035	-0.51	-0.0094	-0.54	-0.0013	-0.54
GADLT1	0.0001	0.01	0.0003	0.01	-0.0001	-0.01	-0.0002	-0.01	0.0000	-0.01
Midwest	0.0002	0.05	0.0009	0.05	-0.0003	-0.05	-0.0008	-0.05	-0.0001	-0.05
West	-0.0043	-0.99	-0.0186	-0.97	0.0051	1.03	0.0156	0.96	0.0022	0.94
South	-0.0080	-2.01	-0.0345	-1.96	0.0093	2.10	0.0291	1.94	0.0041	1.88
EDUC	-0.0228	-12.29	-0.0914	-18.04	0.0216	7.01	0.0820	18.49	0.0106	8.79
DEPEPS	0.0002	1.00	0.0006	1.00	-0.0001	-0.99	-0.0005	-1.00	-0.0001	-0.99
COHAB	-0.0296	-5.93	-0.1125	-6.75	0.0287	5.03	0.1004	6.79	0.0130	5.55
BLACK	0.0305	2.82	0.0972	3.62	-0.0360	-2.59	-0.0821	-3.80	-0.0096	-3.80
HISPANIC	0.0155	1.60	0.0548	1.81	-0.0172	-1.44	-0.0473	-1.88	-0.0058	-1.95
ALCDLT	-0.0066	-1.45	-0.0271	-1.42	0.0059	1.52	0.0246	1.41	0.0032	1.37
DRGDLT	0.0062	0.89	0.0237	0.93	-0.0063	-0.83	-0.0210	-0.94	-0.0026	-0.96
GADLT1	0.0067	0.60	0.0254	0.64	-0.0070	-0.56	-0.0223	-0.65	-0.0028	-0.67
Midwest	-0.0046	-0.79	-0.0188	-0.78	0.0042	0.82	0.0170	0.77	0.0022	0.76
West	-0.0117	-2.03	-0.0498	-1.93	0.0094	2.40	0.0459	1.88	0.0062	1.76
South	-0.0151	-2.75	-0.0634	-2.66	0.0124	2.99	0.0583	2.60	0.0078	2.41
EDUC	-0.0224	-10.57	-0.1040	-16.93	0.0379	8.73	0.0772	16.63	0.0112	7.83
DEPEPS	-0.0002	-0.89	-0.0007	-0.89	0.0003	0.89	0.0005	0.89	0.0001	0.88
COHAB	-0.0064	-1.50	-0.0294	-1.53	0.0109	1.49	0.0217	1.53	0.0031	1.51
BLACK	0.0086	1.17	0.0374	1.26	-0.0153	-1.14	-0.0269	-1.30	-0.0038	-1.32
HISPANIC	0.0106	1.10	0.0448	1.22	-0.0191	-1.07	-0.0320	-1.27	-0.0045	-1.31
ALCDLT	0.0195	2.19	0.0774	2.61	-0.0353	-2.15	-0.0542	-2.75	-0.0074	-2.75
DRGDLT	-0.0045	-0.59	-0.0218	-0.57	0.0073	0.63	0.0166	0.56	0.0025	0.55
GADLT1	-0.0073	-1.04	-0.0364	-0.97	0.0114	1.15	0.0280	0.94	0.0042	0.89
Midwest	0.0041	0.67	0.0186	0.68	-0.0071	-0.66	-0.0137	-0.69	-0.0020	-0.69
West	0.0035	0.53	0.0157	0.54	-0.0060	-0.52	-0.0116	-0.55	-0.0017	-0.55
South	0.0005	0.09	0.0023	0.09	-0.0008	-0.09	-0.0017	-0.09	-0.0002	-0.09

Table C.26: Marginal Effect of Recency of Episodes on Occupational Job Zone-Limited

NCS1 Good	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Female	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.0124	-3.51	-0.0796	-6.05	0.0043	0.63	0.0759	6.00	0.0117	3.44
SEXF	0.0120	1.68	0.0792	1.81	-0.0017	-0.24	-0.0772	-1.77	-0.0124	-1.58
DEPREC	-0.0022	-0.75	-0.0140	-0.76	0.0008	0.49	0.0134	0.76	0.0021	0.75
COHAB	0.0064	0.93	0.0412	0.95	-0.0022	-0.52	-0.0393	-0.95	-0.0061	-0.92
BLACK	0.0024	0.17	0.0149	0.17	-0.0012	-0.13	-0.0140	-0.18	-0.0021	-0.18
HISPANIC	-0.0005	-0.04	-0.0031	-0.04	0.0002	0.04	0.0030	0.04	0.0005	0.04
ALCDLT	-0.0066	-0.88	-0.0433	-0.88	0.0011	0.30	0.0421	0.87	0.0067	0.83
DRGDLT	0.0214	1.66	0.1194	2.05	-0.0198	-1.08	-0.1059	-2.19	-0.0151	-2.03
GADLT1	-0.0016	-0.20	-0.0104	-0.20	0.0005	0.24	0.0100	0.20	0.0016	0.19
Midwest	-0.0073	-0.81	-0.0487	-0.79	0.0004	0.08	0.0479	0.77	0.0077	0.72
West	-0.0112	-1.26	-0.0760	-1.25	-0.0007	-0.09	0.0755	1.21	0.0124	1.08
South	-0.0180	-2.07	-0.1269	-2.19	-0.0102	-0.61	0.1315	2.05	0.0235	1.61
EDUC	-0.0075	-1.86	-0.0736	-3.57	-0.0090	-0.87	0.0776	3.56	0.0124	2.26
DEPREC	-0.0026	-0.80	-0.0253	-0.87	-0.0031	-0.61	0.0267	0.87	0.0043	0.83
COHAB	-0.0015	-0.20	-0.0145	-0.20	-0.0018	-0.20	0.0153	0.20	0.0024	0.20
BLACK	-0.0061	-0.52	-0.0658	-0.49	-0.0166	-0.31	0.0747	0.46	0.0138	0.39
HISPANIC	-0.0035	-0.32	-0.0366	-0.31	-0.0068	-0.22	0.0401	0.30	0.0068	0.27
ALCDLT	-0.0082	-0.95	-0.0820	-1.07	-0.0124	-0.67	0.0879	1.04	0.0146	0.95
DRGDLT	0.0200	1.32	0.1721	1.88	0.0022	0.10	-0.1691	-1.97	-0.0252	-1.65
GADLT1	2.0E-05	0.002	0.0002	0.002	2.4E-05	0.002	-0.0002	-0.002	-3.4E-05	-0.002
Midwest	-0.0105	-1.11	-0.1124	-1.19	-0.0294	-0.71	0.1280	1.12	0.0243	0.88
West	-0.0188	-1.58	-0.1934	-2.26	-0.0472	-1.21	0.2166	2.20	0.0428	1.48
South	-0.0158	-1.51	-0.1708	-1.99	-0.0515	-1.11	0.1971	1.89	0.0410	1.28
EDUC	-0.0170	-3.01	-0.0908	-5.00	0.0154	1.43	0.0807	4.95	0.0117	2.59
DEPREC	0.0001	0.02	0.0005	0.02	-0.0001	-0.02	-0.0004	-0.02	-0.0001	-0.02
COHAB	0.0117	1.07	0.0625	1.12	-0.0104	-0.90	-0.0556	-1.12	-0.0081	-1.04
BLACK	0.0156	0.60	0.0729	0.70	-0.0201	-0.50	-0.0602	-0.75	-0.0081	-0.78
HISPANIC	0.0068	0.24	0.0341	0.26	-0.0077	-0.21	-0.0291	-0.27	-0.0041	-0.28
ALCDLT	-0.0042	-0.36	-0.0230	-0.36	0.0035	0.39	0.0207	0.35	0.0031	0.34
DRGDLT	0.0149	0.79	0.0721	0.88	-0.0182	-0.64	-0.0605	-0.94	-0.0083	-0.93
GADLT1	-0.0035	-0.29	-0.0190	-0.28	0.0028	0.32	0.0171	0.28	0.0025	0.27
Midwest	-0.0014	-0.10	-0.0077	-0.10	0.0013	0.10	0.0069	0.10	0.0010	0.10
West	0.0058	0.33	0.0299	0.34	-0.0059	-0.30	-0.0260	-0.35	-0.0037	-0.36
South	-0.0147	-1.09	-0.0848	-1.06	0.0068	0.69	0.0801	1.00	0.0126	0.88

Table C.27: Marginal Effect of Recency of Episodes on Occupational Job Zone-Unlimited

NCSI Good	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Female	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.0123	-3.70	-0.0826	-6.59	0.0089	1.35	0.0728	6.47	0.0132	3.86
SEXF	0.0081	1.27	0.0556	1.31	-0.0047	-0.93	-0.0498	-1.28	-0.0093	-1.21
DEPREC	-0.0021	-0.82	-0.0145	-0.83	0.0016	0.71	0.0128	0.83	0.0023	0.82
COHAB	0.0023	0.37	0.0157	0.37	-0.0017	-0.36	-0.0138	-0.37	-0.0025	-0.37
BLACK	0.0090	0.59	0.0550	0.66	-0.0102	-0.46	-0.0460	-0.70	-0.0078	-0.73
HISPANIC	0.0024	0.18	0.0157	0.19	-0.0021	-0.16	-0.0137	-0.19	-0.0024	-0.20
ALCDLT	-0.0074	-1.05	-0.0509	-1.06	0.0039	0.86	0.0457	1.04	0.0085	0.99
DRGDLT	0.0139	1.30	0.0846	1.49	-0.0154	-0.98	-0.0709	-1.56	-0.0121	-1.56
GADLT1	-0.0030	-0.42	-0.0204	-0.42	0.0018	0.49	0.0182	0.41	0.0034	0.40
Midwest	-0.0055	-0.64	-0.0384	-0.62	0.0028	0.73	0.0347	0.61	0.0065	0.58
West	-0.0075	-0.89	-0.0526	-0.87	0.0034	0.79	0.0477	0.85	0.0090	0.80
South	-0.0150	-1.84	-0.1090	-1.9	0.0017	0.18	0.1019	1.80	0.0204	1.53
EDUC	-0.0065	-1.88	-0.0796	-3.95	3.4E-05	0.004	0.0750	3.91	0.0111	2.30
DEPREC	-0.0023	-0.85	-0.0275	-0.93	1.2E-05	0.004	0.0259	0.93	0.0038	0.88
COHAB	-0.0036	-0.57	-0.0439	-0.60	4.4E-05	0.01	0.0414	0.60	0.0061	0.58
BLACK	-0.0018	-0.15	-0.0223	-0.15	-0.0008	-0.07	0.0215	0.14	0.0033	0.14
HISPANIC	-0.0001	-0.01	-0.0009	-0.01	-8.0E-07	-0.003	0.0009	0.01	0.0001	0.01
ALCDLT	-0.0060	-0.84	-0.0738	-0.93	-0.0010	-0.11	0.0703	0.91	0.0106	0.86
DRGDLT	0.0134	1.19	0.1460	1.59	-0.0112	-0.54	-0.1299	-1.65	-0.0182	-1.46
GADLT1	0.0008	0.11	0.0094	0.11	-0.0001	-0.04	-0.0089	-0.11	-0.0013	-0.11
Midwest	-0.0065	-0.79	-0.0841	-0.80	-0.0069	-0.34	0.0838	0.76	0.0136	0.66
West	-0.0165	-1.61	-0.2157	-2.43	-0.0320	-0.88	0.2223	2.29	0.0418	1.49
South	-0.0130	-1.42	-0.1722	-1.82	-0.0230	-0.71	0.1766	1.72	0.0316	1.24
EDUC	-0.0171	-3.21	-0.0924	-5.46	0.0168	1.66	0.0778	5.33	0.0149	3.11
DEPREC	-0.0007	-0.18	-0.0040	-0.18	0.0007	0.18	0.0034	0.18	0.0007	0.18
COHAB	0.0068	0.69	0.0368	0.70	-0.0066	-0.66	-0.0310	-0.70	-0.0060	-0.68
BLACK	0.0214	0.83	0.0963	1.02	-0.0306	-0.71	-0.0742	-1.11	-0.0129	-1.16
HISPANIC	0.0041	0.18	0.0214	0.19	-0.0046	-0.16	-0.0176	-0.19	-0.0033	-0.20
ALCDLT	-0.0077	-0.71	-0.0433	-0.70	0.0063	0.77	0.0374	0.68	0.0074	0.65
DRGDLT	0.0036	0.24	0.0190	0.24	-0.0039	-0.22	-0.0158	-0.25	-0.0030	-0.25
GADLT1	-0.0098	-0.94	-0.0557	-0.93	0.0071	0.99	0.0485	0.89	0.0098	0.83
Midwest	-0.0030	-0.22	-0.0167	-0.22	0.0028	0.24	0.0142	0.22	0.0028	0.21
West	0.0141	0.79	0.0708	0.88	-0.0171	-0.68	-0.0573	-0.92	-0.0105	-0.92
South	-0.0109	-0.85	-0.0619	-0.83	0.0078	0.92	0.0540	0.80	0.0109	0.74

Table C.28: Marginal Effect of Early-Onset Depression and Number of Episodes on Occupational Job Zone-Limited

NCS1 Good	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Female	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.0227	-15.53	-0.0966	-23.91	0.0254	9.67	0.0827	24.03	0.0112	11.42
SEXF	0.0096	3.02	0.0406	3.10	-0.0109	-2.94	-0.0347	-3.10	-0.0047	-3.03
DEPEO	-0.0105	-2.29	-0.0489	-2.12	0.0094	3.12	0.0437	2.03	0.0063	1.88
DEPEPS	0.0002	1.34	0.0010	1.34	-0.0003	-1.33	-0.0008	-1.35	-0.0001	-1.34
COHAB	-0.0192	-5.66	-0.0794	-6.13	0.0220	5.17	0.0675	6.17	0.0091	5.56
BLACK	0.0154	2.41	0.0584	2.74	-0.0199	-2.21	-0.0478	-2.86	-0.0061	-2.93
HISPANIC	0.0129	1.80	0.0493	2.02	-0.0165	-1.66	-0.0405	-2.10	-0.0052	-2.17
ALCDLT	0.0034	0.82	0.0140	0.83	-0.0039	-0.79	-0.0119	-0.84	-0.0016	-0.85
DRGDLT	0.0029	0.53	0.0121	0.55	-0.0034	-0.52	-0.0102	-0.55	-0.0014	-0.56
GADLT1	0.0062	0.81	0.0252	0.86	-0.0076	-0.76	-0.0211	-0.88	-0.0028	-0.90
Midwest	-0.0005	-0.12	-0.0022	-0.12	0.0006	0.12	0.0019	0.12	0.0003	0.12
West	-0.0042	-0.95	-0.0183	-0.93	0.0045	1.00	0.0158	0.92	0.0022	0.90
South	-0.0076	-1.87	-0.0333	-1.83	0.0080	1.98	0.0289	1.81	0.0040	1.75
EDUC	-0.0228	-11.71	-0.0933	-17.57	0.0191	5.88	0.0858	17.87	0.0113	8.66
DEPEO	-0.0165	-2.52	-0.0777	-2.24	0.0063	2.05	0.0766	2.09	0.0113	1.81
DEPEPS	0.0004	1.88	0.0015	1.88	-0.0003	-1.80	-0.0014	-1.89	-0.0002	-1.85
COHAB	-0.0298	-5.87	-0.1159	-6.71	0.0258	4.62	0.1060	6.76	0.0139	5.51
BLACK	0.0283	2.59	0.0935	3.26	-0.0314	-2.29	-0.0808	-3.44	-0.0096	-3.49
HISPANIC	0.0140	1.45	0.0513	1.62	-0.0143	-1.27	-0.0454	-1.68	-0.0056	-1.75
ALCDLT	-0.0044	-0.94	-0.0185	-0.93	0.0035	0.99	0.0171	0.92	0.0023	0.91
DRGDLT	0.0067	0.93	0.0261	0.98	-0.0062	-0.85	-0.0236	-0.99	-0.0030	-1.01
GADLT1	0.0109	0.88	0.0407	0.96	-0.0109	-0.78	-0.0362	-0.99	-0.0045	-1.04
Midwest	-0.0050	-0.85	-0.0209	-0.84	0.0039	0.91	0.0194	0.83	0.0026	0.82
West	-0.0100	-1.71	-0.0433	-1.64	0.0070	2.04	0.0408	1.60	0.0056	1.52
South	-0.0139	-2.50	-0.0596	-2.42	0.0097	2.73	0.0561	2.37	0.0077	2.2
EDUC	-0.0220	-10.12	-0.1034	-16.38	0.0351	7.86	0.0793	16.09	0.0109	7.42
DEPEO	-0.0069	-1.15	-0.0346	-1.09	0.0102	1.28	0.0274	1.06	0.0039	1.01
DEPEPS	-0.0003	-0.95	-0.0014	-0.95	0.0005	0.95	0.0011	0.95	0.0001	0.95
COHAB	-0.0070	-1.60	-0.0326	-1.64	0.0113	1.58	0.0249	1.64	0.0034	1.62
BLACK	0.0056	0.77	0.0252	0.81	-0.0094	-0.74	-0.0189	-0.83	-0.0026	-0.84
HISPANIC	0.0139	1.31	0.0578	1.5	-0.0243	-1.26	-0.0420	-1.58	-0.0055	-1.63
ALCDLT	0.0254	2.58	0.0981	3.24	-0.0449	-2.53	-0.0697	-3.45	-0.0089	-3.36
DRGDLT	-0.0033	-0.43	-0.0162	-0.41	0.0051	0.45	0.0127	0.41	0.0018	0.40
GADLT1	-0.0003	-0.04	-0.0016	-0.04	0.0005	0.04	0.0012	0.04	0.0002	0.04
Midwest	0.0033	0.54	0.0154	0.55	-0.0054	-0.53	-0.0117	-0.56	-0.0016	-0.56
West	0.0021	0.33	0.0099	0.33	-0.0035	-0.32	-0.0076	-0.33	-0.0010	-0.34
South	0.0002	0.04	0.0011	0.04	-0.0004	-0.04	-0.0009	-0.04	-0.0001	-0.04

Table C.29: Marginal Effect of Early-Onset Depression and Number of Episodes on Occupational Job Zone-Unlimited

NCSI Good	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Female	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.0226	-16.22	-0.0952	-24.51	0.0279	11.09	0.0792	24.71	0.0108	11.76
SEXF	0.0096	3.06	0.0398	3.13	-0.0119	-3.00	-0.0330	-3.13	-0.0045	-3.07
DEPEO	-0.0095	-2.10	-0.0434	-1.95	0.0101	2.55	0.0374	1.88	0.0054	1.77
DEPEPS	0.0001	0.75	0.0004	0.75	-0.0001	-0.75	-0.0003	-0.75	0.0000	-0.75
COHAB	-0.0188	-5.69	-0.0767	-6.13	0.0235	5.35	0.0634	6.17	0.0086	5.59
BLACK	0.0181	2.83	0.0661	3.29	-0.0250	-2.65	-0.0524	-3.44	-0.0068	-3.50
HISPANIC	0.0125	1.83	0.0475	2.04	-0.0170	-1.71	-0.0380	-2.11	-0.0050	-2.18
ALCDLT	0.0007	0.17	0.0028	0.17	-0.0008	-0.17	-0.0024	-0.17	-0.0003	-0.18
DRGDLT	0.0037	0.70	0.0153	0.72	-0.0048	-0.67	-0.0126	-0.73	-0.0017	-0.74
GADLT1	0.0031	0.44	0.0126	0.45	-0.0039	-0.43	-0.0103	-0.46	-0.0014	-0.46
Midwest	0.0003	0.06	0.0011	0.06	-0.0003	-0.06	-0.0009	-0.06	-0.0001	-0.06
West	-0.0041	-0.93	-0.0175	-0.91	0.0048	0.97	0.0147	0.90	0.0020	0.89
South	-0.0079	-1.99	-0.0342	-1.94	0.0093	2.08	0.0288	1.92	0.0040	1.86
EDUC	-0.0227	-12.27	-0.0911	-17.98	0.0216	7.02	0.0816	18.42	0.0105	8.78
DEPEO	-0.0140	-2.07	-0.0635	-1.86	0.0090	3.61	0.0601	1.76	0.0085	1.58
DEPEPS	0.0002	1.20	0.0007	1.21	-0.0002	-1.19	-0.0007	-1.21	-0.0001	-1.20
COHAB	-0.0298	-5.96	-0.1133	-6.79	0.0290	5.05	0.1010	6.83	0.0130	5.57
BLACK	0.0302	2.81	0.0965	3.59	-0.0357	-2.58	-0.0815	-3.77	-0.0095	-3.77
HISPANIC	0.0157	1.62	0.0556	1.84	-0.0175	-1.46	-0.0480	-1.91	-0.0058	-1.98
ALCDLT	-0.0064	-1.41	-0.0264	-1.39	0.0058	1.48	0.0239	1.37	0.0031	1.34
DRGDLT	0.0077	1.08	0.0293	1.14	-0.0080	-1.00	-0.0258	-1.16	-0.0032	-1.19
GADLT1	0.0112	0.92	0.0409	1.02	-0.0122	-0.84	-0.0355	-1.05	-0.0044	-1.09
Midwest	-0.0047	-0.80	-0.0191	-0.79	0.0043	0.83	0.0172	0.78	0.0023	0.77
West	-0.0112	-1.93	-0.0475	-1.84	0.0091	2.27	0.0437	1.79	0.0059	1.69
South	-0.0148	-2.70	-0.0625	-2.62	0.0123	2.94	0.0573	2.56	0.0077	2.37
EDUC	-0.0222	-10.55	-0.1036	-16.86	0.0378	8.73	0.0768	16.56	0.0111	7.82
DEPEO	-0.0068	-1.16	-0.0333	-1.11	0.0108	1.25	0.0254	1.07	0.0038	1.03
DEPEPS	-0.0001	-0.78	-0.0006	-0.78	0.0002	0.78	0.0005	0.78	0.0001	0.78
COHAB	-0.0067	-1.56	-0.0306	-1.59	0.0114	1.55	0.0227	1.60	0.0033	1.57
BLACK	0.0085	1.16	0.0369	1.25	-0.0151	-1.12	-0.0266	-1.28	-0.0037	-1.31
HISPANIC	0.0106	1.10	0.0447	1.22	-0.0190	-1.07	-0.0318	-1.27	-0.0044	-1.30
ALCDLT	0.0208	2.28	0.0820	2.75	-0.0378	-2.25	-0.0572	-2.91	-0.0078	-2.89
DRGDLT	-0.0038	-0.50	-0.0185	-0.48	0.0063	0.52	0.0140	0.47	0.0021	0.46
GADLT1	-0.0052	-0.70	-0.0257	-0.66	0.0085	0.74	0.0196	0.65	0.0029	0.63
Midwest	0.0043	0.69	0.0194	0.71	-0.0074	-0.68	-0.0142	-0.72	-0.0020	-0.72
West	0.0035	0.55	0.0162	0.56	-0.0061	-0.54	-0.0119	-0.56	-0.0017	-0.57
South	0.0005	0.09	0.0023	0.09	-0.0009	-0.09	-0.0017	-0.09	-0.0003	-0.09

Table C.30: Marginal Effect of Age of Onset and Recency of Episodes on Occupational Job Zone-Limited

NCS1 Good Female	dy/dx Zone 1	z	dy/dx Zone 2	z	dy/dx Zone 3	z	dy/dx Zone 4	z	dy/dx Zone 5	z
EDUC	-0.0118	-3.47	-0.0775	-5.89	0.0040	0.60	0.0740	5.85	0.0112	3.41
SEXF	0.0132	1.84	0.0888	2.03	-0.0012	-0.16	-0.0871	-1.97	-0.0138	-1.72
DEPEOA	-0.0015	-1.67	-0.0098	-1.82	0.0005	0.57	0.0093	1.81	0.0014	1.65
DEPREC	-0.0012	-0.43	-0.0081	-0.43	0.0004	0.35	0.0077	0.43	0.0012	0.43
COHAB	0.0069	1.01	0.0451	1.04	-0.0023	-0.51	-0.0431	-1.04	-0.0066	-1.00
BLACK	0.0023	0.17	0.0149	0.17	-0.0011	-0.13	-0.0140	-0.18	-0.0021	-0.18
HISPANIC	0.0023	0.16	0.0146	0.16	-0.0011	-0.12	-0.0137	-0.17	-0.0020	-0.17
ALCDLT	-0.0066	-0.90	-0.0443	-0.90	0.0010	0.26	0.0432	0.88	0.0067	0.84
DRGDLT	0.0191	1.55	0.1101	1.88	-0.0171	-0.99	-0.0982	-2.01	-0.0138	-1.89
GADLT1	-0.0012	-0.16	-0.0082	-0.16	0.0004	0.18	0.0079	0.15	0.0012	0.15
Midwest	-0.0062	-0.70	-0.0421	-0.68	0.0005	0.12	0.0414	0.66	0.0065	0.63
West	-0.0111	-1.27	-0.0768	-1.27	-0.0010	-0.13	0.0765	1.22	0.0124	1.09
South	-0.0174	-2.05	-0.1252	-2.16	-0.0103	-0.62	0.1301	2.02	0.0228	1.60
EDUC	-0.0069	-1.83	-0.0696	-3.39	-0.0096	-0.95	0.0744	3.41	0.0116	2.22
DEPEOA	-0.0011	-1.18	-0.0113	-1.42	-0.0016	-0.79	0.0121	1.40	0.0019	1.24
DEPREC	-0.0019	-0.62	-0.0189	-0.65	-0.0026	-0.54	0.0202	0.65	0.0032	0.63
COHAB	-0.0004	-0.06	-0.0043	-0.06	-0.0006	-0.06	0.0046	0.06	0.0007	0.06
BLACK	-0.0062	-0.56	-0.0691	-0.53	-0.0193	-0.34	0.0799	0.49	0.0146	0.41
HISPANIC	-0.0007	-0.06	-0.0075	-0.06	-0.0011	-0.05	0.0081	0.06	0.0013	0.06
ALCDLT	-0.0063	-0.77	-0.0645	-0.83	-0.0104	-0.60	0.0700	0.82	0.0113	0.77
DRGDLT	0.0172	1.23	0.1546	1.69	0.0055	0.27	-0.1546	-1.77	-0.0227	-1.54
GADLT1	0.0012	0.14	0.0124	0.14	0.0015	0.16	-0.0131	-0.14	-0.0020	-0.14
Midwest	-0.0100	-1.09	-0.1094	-1.16	-0.0303	-0.72	0.1262	1.09	0.0235	0.87
West	-0.0184	-1.58	-0.1941	-2.29	-0.0511	-1.26	0.2206	2.23	0.0431	1.49
South	-0.0149	-1.47	-0.1637	-1.91	-0.0515	-1.10	0.1914	1.81	0.0387	1.25
EDUC	-0.0166	-2.99	-0.0898	-4.93	0.0156	1.46	0.0794	4.88	0.0114	2.57
DEPEOA	-0.0016	-1.08	-0.0084	-1.13	0.0015	0.90	0.0074	1.13	0.0011	1.06
DEPREC	0.0011	0.22	0.0057	0.22	-0.0010	-0.22	-0.0050	-0.22	-0.0007	-0.22
COHAB	0.0120	1.10	0.0644	1.15	-0.0110	-0.93	-0.0571	-1.15	-0.0083	-1.06
BLACK	0.0158	0.61	0.0743	0.71	-0.0210	-0.51	-0.0610	-0.76	-0.0081	-0.79
HISPANIC	0.0080	0.29	0.0403	0.31	-0.0097	-0.24	-0.0340	-0.32	-0.0047	-0.34
ALCDLT	-0.0060	-0.52	-0.0334	-0.51	0.0049	0.56	0.0301	0.50	0.0044	0.48
DRGDLT	0.0138	0.75	0.0677	0.83	-0.0170	-0.61	-0.0567	-0.88	-0.0077	-0.88
GADLT1	-0.0039	-0.32	-0.0215	-0.32	0.0033	0.36	0.0193	0.31	0.0028	0.31
Midwest	-0.0002	-0.01	-0.0010	-0.01	0.0002	0.01	0.0009	0.01	0.0001	0.01
West	0.0058	0.34	0.0306	0.35	-0.0062	-0.31	-0.0266	-0.36	-0.0038	-0.37
South	-0.0145	-1.09	-0.0849	-1.06	0.0072	0.73	0.0798	1.00	0.0124	0.88

Table C.31: Marginal Effect of Age of Onset and Recency of Episodes on Occupational Job Zone-Unlimited

NCSI Good	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Female	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5	
EDUC	-0.0117	-3.65	-0.0799	-6.35	0.0084	1.31	0.0706	6.26	0.0126	3.81
SEXF	0.0088	1.38	0.0611	1.43	-0.0048	-0.92	-0.0549	-1.40	-0.0101	-1.31
DEPEOA	-0.0012	-1.53	-0.0082	-1.64	0.0009	1.05	0.0073	1.63	0.0013	1.54
DEPREC	-0.0013	-0.48	-0.0086	-0.49	0.0009	0.45	0.0076	0.49	0.0014	0.48
COHAB	0.0029	0.46	0.0195	0.46	-0.0020	-0.44	-0.0172	-0.46	-0.0031	-0.46
BLACK	0.0099	0.64	0.0604	0.72	-0.0115	-0.50	-0.0504	-0.76	-0.0084	-0.81
HISPANIC	0.0050	0.36	0.0322	0.38	-0.0049	-0.29	-0.0275	-0.39	-0.0047	-0.41
ALCDLT	-0.0071	-1.03	-0.0497	-1.03	0.0038	0.84	0.0448	1.01	0.0083	0.97
DRGDLT	0.0123	1.19	0.0765	1.35	-0.0132	-0.90	-0.0646	-1.41	-0.0110	-1.41
GADLT1	-0.0032	-0.46	-0.0220	-0.45	0.0019	0.53	0.0197	0.44	0.0036	0.43
Midwest	-0.0043	-0.50	-0.0303	-0.49	0.0023	0.60	0.0273	0.48	0.0050	0.46
West	-0.0076	-0.91	-0.0538	-0.89	0.0033	0.76	0.0489	0.87	0.0091	0.81
South	-0.0145	-1.79	-0.1059	-1.84	0.0017	0.18	0.0991	1.75	0.0196	1.49
EDUC	-0.0058	-1.84	-0.0734	-3.62	-0.0007	-0.08	0.0698	3.62	0.0101	2.23
DEPEOA	-0.0010	-1.24	-0.0125	-1.52	-0.0001	-0.08	0.0118	1.51	0.0017	1.31
DEPREC	-0.0017	-0.67	-0.0209	-0.71	-0.0002	-0.08	0.0199	0.70	0.0029	0.69
COHAB	-0.0021	-0.36	-0.0269	-0.36	-0.0003	-0.08	0.0255	0.36	0.0037	0.36
BLACK	-0.0014	-0.12	-0.0177	-0.12	-0.0007	-0.06	0.0172	0.11	0.0026	0.11
HISPANIC	0.0033	0.26	0.0394	0.28	-0.0018	-0.12	-0.0360	-0.29	-0.0050	-0.31
ALCDLT	-0.0045	-0.67	-0.0574	-0.72	-0.0012	-0.16	0.0550	0.70	0.0081	0.68
DRGDLT	0.0113	1.10	0.1306	1.42	-0.0079	-0.42	-0.1178	-1.48	-0.0163	-1.34
GADLT1	0.0013	0.19	0.0164	0.19	-0.0001	-0.03	-0.0154	-0.19	-0.0022	-0.19
Midwest	-0.0057	-0.72	-0.0764	-0.72	-0.0066	-0.33	0.0766	0.69	0.0121	0.61
West	-0.0156	-1.59	-0.2123	-2.40	-0.0339	-0.91	0.2210	2.25	0.0408	1.48
South	-0.0117	-1.36	-0.1609	-1.69	-0.0221	-0.70	0.1660	1.59	0.0288	1.18
EDUC	-0.0168	-3.20	-0.0911	-5.37	0.0166	1.66	0.0767	5.25	0.0146	3.10
DEPEOA	-0.0010	-0.77	-0.0052	-0.78	0.0009	0.71	0.0043	0.78	0.0008	0.77
DEPREC	5.0E-05	0.01	0.0003	0.01	-4.9E-05	-0.01	-0.0002	-0.01	-4.3E-05	-0.01
COHAB	0.0069	0.70	0.0373	0.71	-0.0067	-0.67	-0.0314	-0.71	-0.0060	-0.69
BLACK	0.0224	0.86	0.1000	1.06	-0.0324	-0.73	-0.0768	-1.16	-0.0133	-1.20
HISPANIC	0.0056	0.24	0.0289	0.25	-0.0066	-0.21	-0.0236	-0.26	-0.0044	-0.27
ALCDLT	-0.0083	-0.77	-0.0470	-0.75	0.0067	0.82	0.0406	0.73	0.0080	0.70
DRGDLT	0.0033	0.22	0.0173	0.22	-0.0035	-0.20	-0.0143	-0.23	-0.0027	-0.23
GADLT1	-0.0101	-0.97	-0.0579	-0.96	0.0074	1.01	0.0506	0.92	0.0101	0.86
Midwest	-0.0020	-0.14	-0.0109	-0.14	0.0019	0.15	0.0092	0.14	0.0018	0.14
West	0.0139	0.78	0.0695	0.87	-0.0168	-0.67	-0.0563	-0.90	-0.0103	-0.91
South	-0.0107	-0.84	-0.0612	-0.82	0.0079	0.92	0.0534	0.79	0.0107	0.74