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Essays on Supply and Demand Side of the Health Care Market

A Dissertation Presented

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Abstract of the Dissertation

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This dissertation addresses empirical issues on both the supply and demand side of the health care market. The first essay of the dissertation focuses on the supply side, namely male physicians and how they respond to labor supply as wage changes. The second part evaluates current Medicare policy, given the general health insurance market and interactions between the two, from an efficiency perspective.

On the supply side, we offer a new methodology to test two competing labor supply theories for physicians: the standard intertemporal model and target income model, where individuals have reference or target income which they try to achieve over time. The standard model predicts positive wage elasticities of labor supply, where as target income model exhibits negative wage elasticities. Our findings suggests that male physician' exhibit target income behavior, namely, physician that are at or above their target income have inelastic wage elasticities of labor supply, where as physicians that are below their target income exhibit negative wage elasticities which leads them to work longer hours as reimbursement in lowered.

On the demand side we evaluate current Medicare policy. This paper is co-authored with Song Gao. The paper evaluates current Medicare policy, given the general health insurance market and interactions between the two, from an efficiency perspective. Using longitudinal data from the Health and Retirement Study (HRS) we track medical expenditures and health of adults just 4 years before enrollment into Medicare, upon entry, and a four years post entry by prior enrollment insurance status.. Specifically we are interested in differences in cost and benefit outcomes of those who faced barriers to health care services prior to Medicare coverage and those who experienced smoother consumption trajectories. We follow individuals for a period of eight years, that is four years before entering Medicare and four years afterward.

We group them by their private health insurance status prior to entering Medicare, and compare their expenditures and health status biannually over the course of the study. We find that lack of private health insurance coverage before coming onto Medicare will result in a temporary greater increase in medical expenditures upon entry compared to those previously insured. At the same time, we observe relatively better self reported health among the uninsured at this time, which may be based on utilization. Effects are more significant for males than females. However, the trend disappears in the long-run so that both expenditures and health status converge after two years of enrollment, even after controlling for mortality. There may be efficiency gains to spreading costs of care over the life cycle rather than a jump at age 65 borne by the already constrained Medicare system – particularly given the growing number of new enrollees as the babyboomers enter the system.

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Table of Contents

List of Tables

List of Figures

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Chapter 1
Testing Alternative Models of Physicians Labor Supply

JEL classification: I11 – Analysis of health care market; J22-Time allocation and labor supply

Keywords: Target Income, Reference Income, physicians labor supply; physicians earnings

1.1 Introduction

This paper uses data of male[1] physicians in United States to test two competing theories of labor supply: the neoclassical model of intertemporal labor supply and the target /reference income model. We analyze physicians that are owners of practices to test the two aforementioned hypotheses as over the last decade there has been great debate among labor economist in choosing which model is better, (Farber 2005) tend to side with the neoclassical model, where has earlier (Chow 2002) and (Camerer et al. 1997) confirms the target or reference income (RI) theory using data of taxi drivers. More recently (Goette, Fehr, and Huffman 2004; Fehr and Götte 2007) sheds more light into both theories using data from randomized experiment of bicycle messengers and states that "disregarding reference dependent preference in effort decision is not wise," thus suggesting further analysis is required.

Therefore it is timely to study physicians in that they have large income effect, compared to earlier studies on taxi drivers by (Camerer et al. 1997), (Chow 2002), (Farber 2005), bicycle messenger by (Fehr and Götte 2007; Goette and Huffman Forthcoming) and stadium vendors (Oettinger 1999). Further physicians are highly educated and free to choose how much they work as an owner of a practice and the effort they put in on an hourly basis compared to bicycle messenger, taxi drivers or stadium vendors. Earlier work on physicians by (Rizzo and Zeckhauser 2007; Rizzo and Zeckhauser 2003) established that male physicians have target income which they try to

[1] We restrict our analysis to male physicians as it has been well established in labor economics literature that labor market behavior vary substantially by gender. For example (Pencavel 1987; Killingsworth and Heckman 1987; Rizzo and Zeckhauser 2007; Rizzo and Zeckhauser 2003) treat labor supply by gender in different chapters.

achieve over time, thus we extend this study to check how will physicians vary their labor supply by separating physicians into two samples, namely those that are at or above reference income and below reference income, where reference income in the mean and median income within a specialty. This has important policy implication, as we find after accounting for endogeniety of wage and sample selection for physicians that are at or above reference income (AARI) have inelastic wage elasticities, suggesting they will *not* change their labor supply since they are AARI, where as physicians that are below their reference income (BRI) will have negative wage elasticities, exhibiting reference income (RI) behavior.

Rest of the paper is divided into 6 sections. Section 1.2 gives an overview of the literature, with emphasis on the empirical differences between the reference income and intertemporal model in the recent literature, along with the physicians labor supply. Section 1.3 is focused on our conceptual framework. Section 1.4 gives an overview of the data that we use in this study. In section 1.5 we outline our empirical strategy and present multivariate regression results in section 1.6. Section 1.7 concludes.

1.2 Overview of the Literature

This section is separated into three parts. In the first section we summarize the results from the standard intertemporal mode, followed by target or reference income model. The last section gives an overview of the physicians labor supply literature.

1.2.1 Standard Intertemporal Model

The standard intertemporal model of labor supply defines utility that is derived over lifetime of work hours and consumption. It is first put forward by (Lucas Jr. and Rapping 1969) to account for the positive relationship between output and employment. Current labor supply depends on past and expected future wages but in most surveys data over time is missing. These models are dynamic in nature but makes unambiguous prediction regarding wages. That is, hours of labor supplied should be positively related to wages, but overtime using panel data the life-cycle model finds that wages does not have a large impact on wealth. Since substitution effect on wage change on hours worked is positive, the rise is transitory wage should induce an increase in labor supply(Chow 2002; Pencavel 1987). (Abowd and Card 1987) finds correlation between changes over time in the working of individuals and corresponding changes in their wage rates has been negative. But more frequently we are reminded of the multiple problems that lie in the correct measurement of hours and wages. In most instances wages are derived unless presented in the sample by dividing the annual income by hours and number of weeks worked[2]. Thus if there are any errors in measuring hours, it may produce negative correlation between hours and wage rates. (Pencavel 1987) summarizes that the male intertemporal substitution of elasticity range from -0.07 to 0.45 in studies using aggregate data, cohort data and panel data. The standard error surrounding the estimation is often large and life cycle changes in various wages have no effect on hours worked for

[2] Refer to (Borjas 1980) for more details on controlling for "division bias," that is generated when one divides income by number of weeks and weekly hours worked to generate hourly wage.

prime aged men which cannot be rejected at standard level of significance, which (Pencavel 1987) stated as:

"In other words, the greater part of variation in male labor supply across workers and over time is left unexplained by this research. A great deal of effort has been brought to bear on what appear to be relationships of second order importance."

1.2.2 Target or Reference Income

The target or RI literature borrows from prospect theory by (Kahneman and Tversky 1979) and the psychology literature to extend the neoclassical model, where individuals tend to evaluate outcomes as gains or loses relative to their target or goal[3]. Individuals have permanent goals and at workplace they decide how much and how hard they are willing to work over a set period of time, given, they are free to choose hours and effort (Goette, Fehr, and Huffman 2004) to meet these goals, through RI. These types of individuals, like taxi drivers, bicycle messengers, stadium vendors and physicians tend to exhibit RI income behavior or reference dependent preference[4] where workers tend to actually work less hard on days when the wage is high (Goette, Fehr, and Huffman 2004).

[3] For a extended review please see (Heath, Larrick, and Lu 1999) and (Kahneman and Tversky 2000)

[4] We provide a short summary of the recent literature on messenger and taxi drivers, for a detailed review please refer to (Götte, Fehr, Huffman 2004) where they refer to "reference or target income" as "Reference Dependent Preference"

RI model exhibits a very important feature for physicians, which accounts for the difference in "gain" of utility for physicians that are AARI and "loss" for physicians that are BRI. The "gain" and "loss" difference is known as "loss aversion" which, (Tversky and Kahneman 1991; Kahneman and Tversky 1979) developed and (Rizzo and Zeckhauser 2003) uses for physicians to verify target income behavior. Further RI behavior model has been implemented in earlier works by (Camerer et al. 1997; Chow 2002) for taxi drivers and (Fehr and Götte 2007) for messengers.

(Farber 2005) has raised doubt about the RI model by (Camerer et al. 1997) where Camerer et al. uses two-stage least square estimation used to measure taxi drivers wage elasticities, where as (Farber 2005) uses hazard model of quitting. Farber's results show that conditional on hours worked, if a taxi driver has higher earnings earlier in the day, their probability to quit early increases which is expected in the target income model. Once Farber controls for driver fixed effect, day of the week and clock hour he finds previous earnings are no longer affect a taxi driver's likelihood of quitting. (Goette, Fehr, and Huffman 2004) raises an important point regarding interpretation used by (Farber 2005) to side with the neoclassical model, namely when (Farber 2005) adds clock hours, income is no longer a significant predictor for quitting. But if one looks at (Farber 2005) samples one cannot fail to notice that average hourly wage increases over time, and eventually peaks during evening rush hour. (Goette, Fehr, and Huffman 2004) concludes by stating that there might be an identification problem with Farber's specification, as in the specification in which clock hours constraints are removed, the standard model predicts that the drivers are unlikely to quit early as they will forgo

potential for higher earnings. But the RI model predicts that when the earnings are particularly high for taxi drivers, they will tend to quit early as they will reach their target and will have lower marginal utility of income once they pass their target income. Rightly so, in Farber's data many taxi drivers quit as the rush hour peaks, exhibiting RI behavior.

(Goette and Huffman Forthcoming) and (Fehr and Götte 2007) study labor supply decisions of bicycle messenger. (Goette and Huffman Forthcoming) study includes three firms, namely A, B and C; the commission rate for firm A is fixed, but commission rates for B and C are increased from 50% to 55% and 38% to 43 % respectively after the messengers stay with the firms for few month. They test two hypothesis ala RI hypothesis and find that if a messenger have a windfall gain in the morning, then they will exhibit increase and then decrease effort over the afternoon, compared to messengers who had a bad morning; where as with firm B and C they find that a high wage messenger exhibit high effort initially and then they lower their effort through out the day compared to messengers that are on low wage. They note that on average messenger on higher wage tend to work slower at the end of the day, but on average they work harder compared to messengers that are on low wage. This result may support the neoclassical theory but this result is different from (Fehr and Götte 2007), in which wage increase has a negative effect on productivity but (Goette, Fehr, and Huffman 2004) argues that these results are not inconsistent as in the experimental study (Fehr and Götte 2007) where commission rates were increased by 25% compared to 5% in (Goette and Huffman Forthcoming). Both of these studies are consistent with RI behavior in which a larger

increase in wage leads to a larger decrease in time needed to reach the specified target , and thus (Fehr and Götte 2007) observe “an overall reduction in effort.” Apart from studies conducted on messengers and taxi drivers, (Oettinger 1999) studies participation decisions of vendors at baseball stadium. The vendors are free to choose to work or not at a given game since they act as independent contractors. Oettinger estimates the probability of participation dependent on wage and finds positive wage elasticities of participation.

1.2.3 Physicians Labor Supply

Earlier studies on American physician labor supply was conducted by (Sloan 1975; Vahovich 1977; Rizzo and Blumenthal 1994; Thornton 1998;). (Sloan 1975) finds some evidence of positive relationship between wages and labor supply and (Vahovich 1977) reports low elasticities of labor supply with respect to wage changes. More recently (Rizzo and Blumenthal 1994) studied young(below age 40) male physicians income effect of wage change on labor supply to be negative, with an elasticity of -.26. (Thornton 1998) studies self-employed solo practice male physicians and finds that labor supply is not responsive changes in “marginal hourly medical practice earnings and non-practice income.” Overall the studies have been inconclusive.

(Rizzo and Blumenthal 1996) conducted the pioneering work on physicians target income, and finds evidence of target income. They find primary care physicians with higher target to actual income ratio, paid on fee-for-service exhibit significant price

increase, with an elasticity of +0.3 but not among physicians who are not paid on fee for service basis. Subsequent work (Rizzo and Zeckhauser 2003; Rizzo and Zeckhauser 2007) looks into how target income lead to subsequent growth in physicians earnings. They find strong positive relationship between physicians future income if a physician is below their target. Male and female physicians respond differently to their target income. Males exhibit greater responsiveness to target income, where as females do not, which in turn explain the earnings gap between male and female physicians.

1.3 Conceptual Model

In this section we outline out conceptual framework, which has been adopted from earlier model[5] provided by (Rizzo and Zeckhauser 2003) for physicians. (Rizzo and Zeckhauser 2003) presents a theoretical model of physicians target income[6] which takes into loss aversion. A physician has a reference income, which in our case is mean and median yearly earnings by specialty. We separate our sample into physicians that are at or above their RI (AARI) and below RI (ARI). Physician's that are in BRI can increase income in two ways; first they can increase "stimulation"[7] or can work more hours. If the physician is AARI engage in same amount of "stimulation" like their below reference counterparts, they will work more hours in order to meet the target. Marginal utility of

[5] Alternatively (Altman 2001) provides a general model for target income and labor supply.
[6] At times target income model for physicians is linked with supplied induced demand, Folland et al. (2003) provides a summary of the literature and present a model which takes into account target income along with supplier induced demand
[7] Physicians can charge more per hour, cut the time spent with patients for office visits, induce demand through multiple procedures or work in a setting where they can have access to patient with generous health plans. For a greater exposition please review, "Theory L" in Rizzo and Zeckhauser, (2003).

working an additional hour will be negligible for physicians that are AARI since they have reached their RI, but physicians that are BRI will exhibit positive returns. In our data we find, physicians who are BRI, tend to work less hours compared to physicians that are AARI, therefore we observe that physicians who are BRI have higher hourly earnings compared to their AARI counter parts. Indicating BRI physicians might be employing in stimulation behavior.

1.4 Data and Variables

This section is divided into two parts. The fist part is devoted to the data followed by the section on the description of the main variables.

1.4.1 Data

The data for our study comes from Community Tracking Study (CTS) Physician survey, which is a nationally representative telephone survey of non-federal physicians from 60 sites across United States conducted bi-annually in 1996-97, 1998-99 and 2000–01, which included responses from approximately 12,000 physicians in each round with approximately 60% response rate. The second and third rounds of the CTS physician survey included physicians sampled in the previous round, apart from new physicians being added. The survey questions covered a range of topics, including physicians'

income, weekly hours worked and number of weeks worked in a year. We were unable to take full advantage of the cross-section data by constructing as panel, as income and number of weeks worked had a two year lag, for example in 1996-97, the physicians were asked about their income and number of weeks worked in the year from 1995, but weekly hours were from the present (1996-97) year. Thus if we computed the wage, it will be incorrect. In order to correct for this problem, we merged the data from round 1/2 and round 2/3 to construct our pooled sample. We also restrict our samples to physicians that are owners of their own practice as they have more control over their working hours compared to physicians that are employed and have wage of at least $10 and worked a minimum of 20 hours but no more than 128 hours a week on patients.

Additionally we merge our CTS data by FIPS code with Area Resource File(ARF) which contains geographic characteristics such as measures of temperatures that we use to instrument for wage. Additionally we merge private health insurance rate by state from Current Population Survey (CPS) as well in order to have an additional instrument.

1.4.2 Description of Variables

We measure labor supply as the natural logarithm of weekly hours worked in patient care activities. This is standard practice as (Killingsworth 1983) and (Sloan 1975) used previously apart from numerous other studies. Physicians' specialty includes family practitioners, internists, pediatricians, psychiatrists, obstetrician, surgeons and medical specialties. Family practitioners serve as an excluded reference group. Physicians and

practice characteristics were included as well to account for individual physicians preferences. Physicians' characteristics included race: White, Asian, Black; whether a physician is a board certified; whether the physician is a foreign medical graduate (FMG); and experience in the interval of one to five years, six to fourteen years and fifteen to 24 years, and physicians with experience of more than twenty five years were grouped separately and treated as a reference group. Practice characteristics included, the size of the practice, solo, small group of two to five physicians and large group of more than five physicians being the reference group. We also included dummies to control if a physician practiced in a group with physicians from multiple specialties and multiple locations. Regional variables included variables to control for differences in labor market conditions; they included dummy variables such as urban, non metropolitan areas and small metropolitan areas to control for size of the population in the market area. Large metropolitan area has been used as a reference group. Additionally we included regional dummy variables, such as northeast, south, west and mid-west to control for regional differences in regulatory environment and other factors that might effect earnings opportunities and labor supply. Since we had data over two separate years, we controlled for the cohort effect with a year dummy. Table 1 presents each variable with their full name and their means.

1.5 Empirical Strategy and Descriptive Statistics

In the first section we state our empirical strategy followed by the second section we provide a brief description of the data.

1.5.1 Econometric Specification

Our empirical strategy is similar to earlier studies conducted on physicians labor supply by (Sloan 1975; Rizzo and Blumenthal 1994). Since wages *w* and weekly labor supply *h* are jointly determined we use the two stage least square estimation, where *Z represents* the explanatory variable that is correlated with wages but not with weekly hours. $\ln \hat{w}$ is the predicted wage from equation (2) and X is a vector of physician', practice setting and region characteristics. Borjas, (1980) identifies this relationship as division bias which will give us downward biased estimates and suggest the two step procedure. Pencavel (1987) suggest this procedure as well, and calls it "negative spurious relationship" between wages and hours.

$$\ln w = \rho + \lambda x + \gamma Z + u \quad (2)$$

$$\ln h = \alpha + \beta x + \pi \ln \hat{w} + e \quad (3)$$

$$\ln h = \alpha + \beta x + \pi \ln \hat{w} + \phi IVM + e \quad (4)$$

In order to identify the wage equation (2) we needed a *Z* variables that will effect earnings but will not directly effect weekly hours worked. Our strategy is similar to (Oettinger 1999), as we use measure of county specific annual temperature from Area Resource file by linking it with FIPS code to the CTS physician survey. Additionally we have another measure, namely private health insurance rate by state from CPS.

Temperature is a good candidate for instrument *Z* as population density tends to be higher in areas with higher temperature, giving physicians access to more patients which in turn gives them an opportunity earn higher wages by seeing patients, with various types of insurance. Similarly private health insurance rate by state is a good predictor for physician wages, as the private health insurance rate varies by state, giving variation in wages and earnings[8].

Additionally, we identify physicians that AARI and BRI by separating the sample using income constructed[9] from the predicted wage and comparing it to mean and median income by each specialty. Since we separate the sample into the aforementioned group, we could run into a selection problem as our procedure is not random. Therefore we control for selection, through Heckman selection equation for participation into AARI/BRI group. We find selection to be significant, therefore when we estimate equation (3) by adjusting for sample selection by controlling with the inverse mills ratio (IVM) as it can be seen in equation (4). We used preference of hours worked as the selection criteria[10]. Overall, we did not observe a change in our coefficient of interest which is π, even after controlling for selection.

[8] The Sargan-Hansen test is a test of over-identifying restrictions was conducted and we found that the instruments are valid instruments

[9] New income is constructed by multiplying the predicted wage with number of hours worked in a week and number of weeks worked in a year.

[10] Question regarding the preference of hours worked was not asked in consecutive years, thus 45% of the sample were missing value. Thus we imputed the missing values.

1.5.2 Descriptive Statistics

Summary statistics of our main variables are presented in Table 2 by each reference income groups: AARI and BRI. We observe that on average a self-employed physician earns a yearly salary of $194739, working weekly 48 hours and an hourly wage of $90. Physicians AARI earn significantly more; they earn $213649 compared to $172879, a staggering gap of more than $40000. Also physicians at BRI exhibit higher hourly wage compared to physicians AARI. Additionally physicians at BRI works significantly less compared to AARI physicians. We observe on average they work 10 hour less on a weekly basis.

Figure 1 and Figure 2 shows the scatter plot between labor supply or weekly hours worked and wage. Overall in Figure 1 we observe negative relationship between the wages and labor supply, indication RI behavior. Further, when we separate the scatter plot by specialty we observe the negative relationship as well.

1.6 Results

Table 3A and Table 3B present the results of the OLS regression when the sample was separated by mean and median income respectively. Overall we observe negative and significant wage elasticities in the range of -0.09 to -0.15. negative elasticities would suggest RI behavior. Table 4, 5 and 6 present the result from two stage least square

(2SLS) estimates. The table is separated into two parts, the first part, that is (a) , (b) and (c) presents the results without controlling for sample selection. Where as the second part, namely (d), (e) and (f) includes the results from sample selection. It should be noted that OLS results are downward biased, thus by using instruments we correct for this bias but we find that the coefficients become significantly more negative, exhibiting target income behavior. (Camerer et al. 1997) finds similar results, where the wage elasticities become more negative and significant once endogeniety of wage is purged by using instruments.

Overall when we account for the endogeniety of wage on labor supply we observe significant negative wage elasticities. For physicians that are AARI we find inelastic wage elasticity, where as physicians that are BRI exhibit significant negative wage elasticities.

Table 4 presents our two stage least square estimates for the full sample. Overall physicians exhibit negative wage elasticities, varying from -.15 to -.81. For the overall sample we observe significant negative wage elasticities. For physicians that are AARI we observe that they exhibit inelastic (insignificant) wage elasticities, where as physician BRI exhibit significant negative elasticities. This is consistent with our conceptual framework where, physician that are AARI will not change their labor supply in response to wage increase as they have reached their desired RI, where as physicians that are in BRI group will exhibit negative wage elasticities as we find. In order to check for robustness of our results, in Table 5 and Table 6, we drop the top and bottom 1% and 5% of the wage outliers to check for sensitivity of the results. We observe that wage elasticities are in the range of -0.08 to -0.79 in Table 5, when we drop the top and the

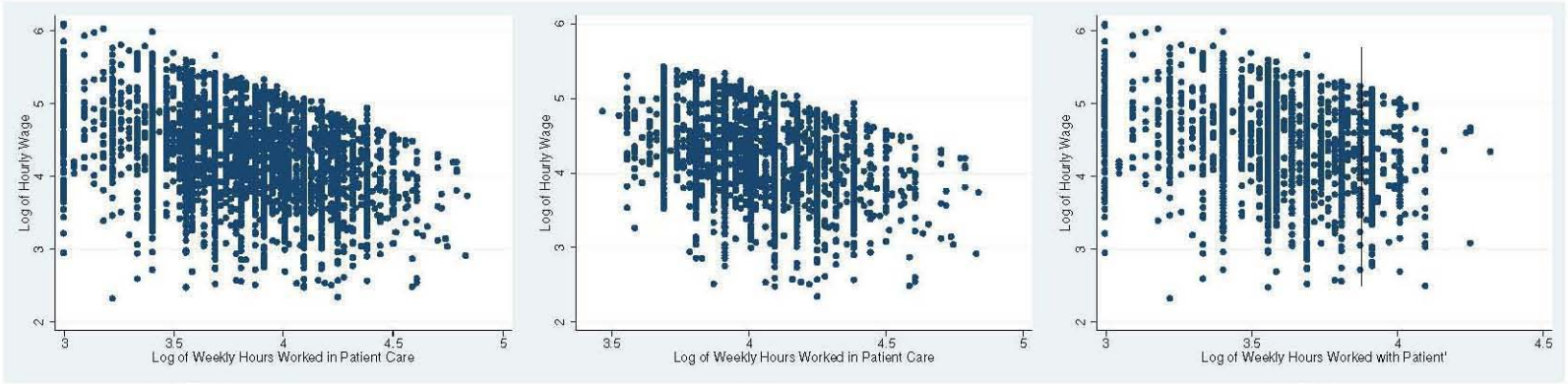
bottom one percent of our sample based on wages, our results does not change. When we drop the top and bottom 5% of our sample based on wages we obtain elasticities in the range of -0.27 to -0.70. Once again our results held up, especially for the AARI, where wage elasticity was inelastic at a 10% significance level.

Table 7 presents the results where reference income was indicated by median income of physicians within a specialty. Our estimates vary between +0.08 to -0.716. We find physicians that are AARI exhibit positive but insignificant wage elasticities. This highlights that the sensitivity results hold; and physicians that are AARI will not change their labor supply in response to increases in wage.

Since we do not randomly assign physicians into AARI or BRI we control for sample selection to check for robustness of our results. We find that inverse mills ratio to be significant for the BRI group for all of our aforementioned results but the wage elasticities does not vary by much and the initial results hold, namely physicians that are AARI will exhibit inelastic wage elasticities, where as physicians that are BRI will exhibit negative elasticities. It is noteworthy that for the physicians that are in the BRI, we observe elasticities close to -1 (ranges from -0.70 to -0.80), which (Camerer et al. 1997) points out we should observe if an individual is exhibiting RI behavior.

1.7 Conclusion

Overall we find that physicians exhibit negative wage elasticities of labor supply, supporting the RI behavior. This is in contrast to (Farber 2005) and (Oettinger 1999), where they find positive wage elasticities and is consistent with randomized experiment conducted by (Fehr and Götte 2007). Male physicians tend to exhibit RI behavior. Further with Medicare lowering reimbursement rates over the years, we might observe physicians engaging in RI behavior, which may ultimately lead to cost shifting and stimulation by health care providers as physicians would like to reach their RI.



Full Sample AARI BRI

Figure 1: Scatter Plot of Wage and Labor Supply

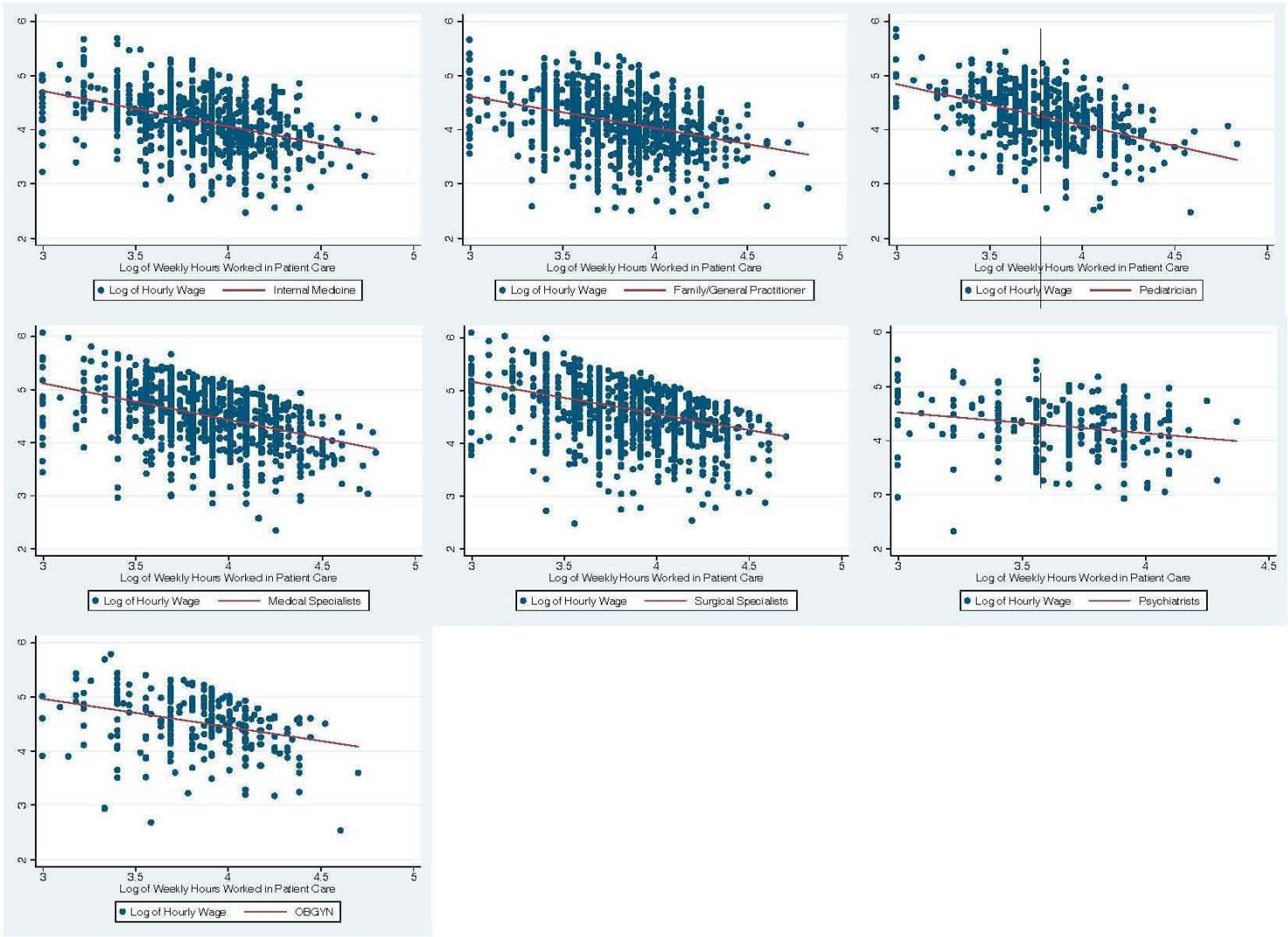


Figure 2: Scatter Plot of Wage and Labor supply by Specialty

Table 1: Variables Description and Means

Variable Name	Variable Description		Mean
Income, Hours, Wage			
incomet	Yearly Income		194739.50
hrspat	Weekly Hours Worked on Patient care		48.27
lnhrspat	Log of Weekly Hours Worked on Patient Care		3.83
wagepat	Hourly Wage		89.61
lnwage	log of hourly Wage		4.36
Physician Characteristics			
parttime	Part-time	DV=1	0.20
fmg	Foreign Medical Graduate	DV=1	0.22
family_genaral_prac	Family/General Practitioner	DV=1	0.21
internal_med	Internist	DV=1	0.18
pediatrics	Pediatricians	DV=1	0.11
medical_specialties	Medical Subspecialties	DV=1	0.19
surgical_specialties	Surgical Subspecialties	DV=1	0.22
psychiatry	Psychiatrists	DV=1	0.04
obgyn	Obstetrician/gynecologists	DV=1	0.04
board_cert	Board certified	DV=1	0.87
white	White	DV=1	0.83
asian	Asian	DV=1	0.09
black	Black	DV=1	0.03
others	Other	DV=1	0.04
exp1to5	Experience 1 to 5 years	DV=1	0.07
exp6to14	Experience 4 to 14 years	DV=1	0.32
exp15to24	Experience of 14 to 24 years	DV=1	0.36
exp25up	Experience of 25+	DV=1	0.25
Practice Characteristics			
solo	Solo practice	DV=1	0.40
smallgroup	Small Group Practice	DV=1	0.32
largegroup	Large Group Practice	DV=1	0.32
multispec	Practice offer Physicians from Multiple Specialties	DV=1	0.17
multpr	Physician Practice in Multiple Locations	DV=1	0.07
Regional Characteristics			
northeast	North East	DV=1	0.23
midwest	Mid West	DV=1	0.17
south	South	DV=1	0.34
west	West	DV=1	0.26
urban	Urban	DV=1	0.07
smallmetro	Small Metropolitan Area	DV=1	0.04
largemetro	Large Metropolitan Area	DV=1	0.87
nonmetro	Non Metropolitan Area	DV=1	0.09
year_99	Percentage of observation fromYear 1999	DV=1	0.54
Instrumental Variables			
insurancerate	Insurance rate by State		0.70
annualtemp76	Annual Temperature in 1976 in Farenheit		57.33
Selection Variable			
ctl_wrk	Control of Work Hours (N=3579)		8.894
ctl_wrk_imp	Control of Work Hours Imputed (N=6645)		8.890
N	Number of Observations		6645.00

Table 2: Summary Statistics of Selected Variables by Mean and Median Reference Income					
		Mean		Median	
	Full Sample	AARI	BRI	AARI	BRI
Income	194740	213649	172879	209130	172701
Wage	90	82	99	82	101
Hours Spent with Patient (Labor Supply)	48	53	43	52	42
Hours Spent in Medicine Related Activity	57	61	52	60	51
N	6645	3563	3082	4020	2625

Note:

The reference income was either mean or median income within a specialty. Reference income was compared with the predicted income of male physicians, which was(predicted wage x weekly hours x # of weeks worked) and thus the physician was either classified under AARI if the predicted income was greater than or equal to the reference income or BRI if the predicted income was less than the reference income

AARI: At or Above Reference Income
BRI: Below Reference Income

Table 3A: OLS Estimates of Self-Employed Male Physicians Labor Supply where Reference Income is mean income within a specialty

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
lnwagepat	-0.121	-0.145	-0.096	-0.121	-0.144	-0.096
	(0.005)	(0.007)	(0.007)	(0.005)	(0.007)	(0.007)
Inverse Mills Ratio	-	-	-	-0.238	0.066	-0.392
				(0.039)	(0.060)	(0.067)
belowrefinc	-0.371	-	-	-0.371	-	-
	(0.005)			(0.005)		
Physicians Characteristics						
exp1to5	0.031	0.023	0.026	-0.001	0.031	-0.023
	(0.009)	(0.013)	(0.014)	(0.011)	(0.015)	(0.016)
exp6to14	-0.003	-0.009	-0.003	-0.089	0.013	-0.151
	(0.006)	(0.009)	(0.009)	(0.015)	(0.021)	(0.027)
exp15to24	-0.021	-0.026	-0.018	-0.117	-0.001	-0.188
	(0.006)	(0.008)	(0.009)	(0.017)	(0.023)	(0.030)
parttime	-0.198	-0.171	-0.214	-0.109	-0.193	-0.060
	(0.006)	(0.009)	(0.008)	(0.016)	(0.022)	(0.028)
fmg	-0.001	0.023	-0.027	-0.019	0.027	-0.060
	(0.006)	(0.008)	(0.009)	(0.007)	(0.009)	(0.011)
internal_med	0.050	0.066	0.029	0.068	0.062	0.062
	(0.007)	(0.009)	(0.011)	(0.008)	(0.010)	(0.012)
pediatrics	0.029	0.023	0.030	0.061	0.015	0.090
	(0.008)	(0.010)	(0.013)	(0.010)	(0.013)	(0.016)
medical_specialties	0.133	0.173	0.088	0.207	0.154	0.224
	(0.008)	(0.010)	(0.012)	(0.014)	(0.020)	(0.026)
surgical_specialties	0.120	0.170	0.070	0.166	0.157	0.152
	(0.007)	(0.010)	(0.011)	(0.011)	(0.015)	(0.018)
psychiatry	-0.092	-0.092	-0.104	-0.144	-0.079	-0.195
	(0.012)	(0.015)	(0.018)	(0.014)	(0.019)	(0.024)
obgyn	0.104	0.153	0.056	0.139	0.144	0.116
	(0.012)	(0.015)	(0.019)	(0.013)	(0.017)	(0.021)
board_cert	-0.025	-0.047	-0.013	-0.093	-0.030	-0.130
	(0.007)	(0.011)	(0.009)	(0.013)	(0.019)	(0.022)
white	-0.019	-0.019	-0.024	-0.060	-0.009	-0.096
	(0.011)	(0.016)	(0.015)	(0.013)	(0.018)	(0.019)
asian	-0.031	-0.044	-0.022	-0.087	-0.030	-0.121
	(0.013)	(0.018)	(0.018)	(0.016)	(0.022)	(0.025)
black	0.035	0.053	0.013	0.039	0.051	0.017
	(0.016)	(0.024)	(0.022)	(0.016)	(0.024)	(0.021)

Table 3A: OLS Estimates of Self-Employed Male Physicians Labor Supply where Reference Income is mean income within a specialty (Cont.)

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
Practice Characteristics						
solo	0.082	0.096	0.065	0.210	0.063	0.290
	(0.006)	(0.008)	(0.011)	(0.022)	(0.031)	(0.040)
smallgroup	0.040	0.039	0.030	0.075	0.030	0.096
	(0.006)	(0.007)	(0.011)	(0.008)	(0.010)	(0.015)
multispec	-0.016	-0.026	-0.017	-0.069	-0.012	-0.115
	(0.007)	(0.009)	(0.013)	(0.011)	(0.015)	(0.022)
multpr	0.015	0.031	0.003	0.043	0.023	0.054
	(0.009)	(0.012)	(0.013)	(0.010)	(0.014)	(0.015)
Regional Characteristics						
northeast	-0.013	-0.006	-0.020	-0.028	-0.003	-0.050
	(0.007)	(0.009)	(0.011)	(0.007)	(0.010)	(0.012)
south	0.006	0.008	0.007	-0.022	0.014	-0.046
	(0.006)	(0.008)	(0.010)	(0.008)	(0.010)	(0.014)
west	0.022	0.013	0.029	0.056	0.005	0.088
	(0.007)	(0.009)	(0.010)	(0.009)	(0.012)	(0.014)
urban	-0.008	0.001	-0.034	0.059	-0.016	0.091
	(0.016)	(0.019)	(0.029)	(0.020)	(0.025)	(0.036)
smallmetro	0.001	0.003	0.003	-0.019	0.008	-0.034
	(0.012)	(0.014)	(0.022)	(0.012)	(0.014)	(0.022)
nonmetro	0.054	0.044	0.084	-0.009	0.060	-0.035
	(0.015)	(0.017)	(0.027)	(0.018)	(0.022)	(0.033)
year_99	-0.030	-0.029	-0.030	-0.043	-0.026	-0.056
	(0.004)	(0.006)	(0.007)	(0.005)	(0.006)	(0.008)
Constant	4.509	4.603	4.069	4.775	4.532	4.506
	(0.024)	(0.034)	(0.037)	(0.050)	(0.073)	(0.084)
N	6645	3563	3082	-	-	-

Note:
This table reflects the OLS results but the sample was seperated in the same manner as in Table 4 to be consistent

AARI: At or Above Reference Income
BRI: Below Reference Income

Standard error is denoted by parenthesis

Table 3B: OLS Estimates of Self-Employed Male Physicians Labor Supply where Reference Income is Median Income within a specialty

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
lnwagepat	-0.123	-0.151	-0.087	-0.123	-0.151	-0.088
	(0.005)	(0.006)	(0.008)	(0.005)	(0.006)	(0.008)
Inverse Mills Ratio	-	-	-	-0.143	0.040	-0.333
				0.032	0.048	0.064
belowrefinc	-0.377	-	-	-0.377	-	-
	(0.005)			(0.005)		
Physicians Characteristics						
exp1to5	0.034	0.027	0.034	0.020	0.031	0.007
	(0.009)	(0.012)	(0.015)	(0.010)	(0.013)	(0.016)
exp6to14	-0.004	-0.005	-0.006	-0.052	0.007	-0.127
	(0.006)	(0.008)	(0.010)	(0.013)	(0.017)	(0.025)
exp15to24	-0.017	-0.015	-0.017	-0.068	-0.003	-0.150
	(0.006)	(0.008)	(0.009)	(0.013)	(0.017)	(0.027)
parttime	-0.190	-0.169	-0.206	-0.135	-0.183	-0.068
	(0.006)	(0.008)	(0.008)	(0.014)	(0.018)	(0.028)
fmg	-0.004	0.021	-0.039	-0.016	0.024	-0.070
	(0.006)	(0.008)	(0.010)	(0.007)	(0.009)	(0.012)
internal_med	0.058	0.066	0.041	0.074	0.062	0.085
	(0.007)	(0.009)	(0.012)	(0.008)	(0.010)	(0.015)
pediatrics	0.026	0.015	0.041	0.042	0.011	0.089
	(0.008)	(0.010)	(0.014)	(0.009)	(0.011)	(0.017)
medical_specialties	0.146	0.175	0.104	0.198	0.162	0.245
	(0.008)	(0.010)	(0.013)	(0.014)	(0.018)	(0.030)
surgical_specialties	0.149	0.189	0.098	0.195	0.177	0.221
	(0.008)	(0.010)	(0.012)	(0.013)	(0.017)	(0.027)
psychiatry	-0.096	-0.091	-0.111	-0.126	-0.084	-0.190
	(0.012)	(0.014)	(0.020)	(0.014)	(0.017)	(0.025)
obgyn	0.123	0.164	0.068	0.156	0.156	0.153
	(0.012)	(0.015)	(0.020)	(0.014)	(0.018)	(0.026)
board_cert	-0.028	-0.037	-0.021	-0.067	-0.028	-0.119
	(0.007)	(0.010)	(0.010)	(0.011)	(0.015)	(0.021)
white	-0.017	-0.007	-0.028	-0.038	-0.002	-0.085
	(0.011)	(0.015)	(0.016)	(0.012)	(0.016)	(0.019)
asian	-0.028	-0.029	-0.024	-0.057	-0.022	-0.101
	(0.013)	(0.017)	(0.019)	(0.014)	(0.019)	(0.024)
black	0.050	0.076	0.017	0.063	0.073	0.048
	(0.016)	(0.023)	(0.023)	(0.016)	(0.023)	(0.023)

Table 3B: OLS Estimates of Self-Employed Male Physicians Labor Supply where Reference Income is Median Income within a specialty (Cont.)

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
Practice Characteristics						
solo	0.085	0.082	0.088	0.158	0.063	0.277
	(0.007)	(0.008)	(0.012)	(0.018)	(0.024)	(0.038)
smallgroup	0.039	0.032	0.044	0.058	0.027	0.095
	(0.006)	(0.006)	(0.012)	(0.007)	(0.009)	(0.016)
multispec	-0.014	-0.021	-0.015	-0.044	-0.013	-0.094
	(0.007)	(0.009)	(0.015)	(0.010)	(0.013)	(0.021)
multpr	0.016	0.027	0.008	0.034	0.023	0.054
	(0.009)	(0.012)	(0.014)	(0.010)	(0.013)	(0.016)
Regional Characteristics						
northeast	-0.006	0.002	-0.017	-0.010	0.003	-0.030
	(0.007)	(0.009)	(0.012)	(0.007)	(0.009)	(0.012)
south	0.007	0.012	0.002	-0.008	0.016	-0.043
	(0.006)	(0.008)	(0.011)	(0.007)	(0.009)	(0.014)
west	0.021	0.009	0.033	0.039	0.005	0.081
	(0.007)	(0.009)	(0.011)	(0.008)	(0.010)	(0.014)
urban	-0.012	-0.011	-0.032	0.023	-0.020	0.064
	(0.017)	(0.019)	(0.032)	(0.018)	(0.022)	(0.037)
smallmetro	0.001	0.007	-0.004	-0.011	0.010	-0.039
	(0.012)	(0.013)	(0.025)	(0.012)	(0.014)	(0.025)
nonmetro	0.057	0.055	0.079	0.024	0.063	-0.014
	(0.015)	(0.017)	(0.030)	(0.016)	(0.019)	(0.035)
year_99	-0.027	-0.026	-0.029	-0.034	-0.024	-0.047
	(0.004)	(0.005)	(0.007)	(0.005)	(0.006)	(0.008)
Constant	4.478	4.579	3.984	4.605	4.545	4.275
	(0.025)	(0.033)	(0.040)	(0.038)	(0.052)	(0.068)
N	6645	4020	2625	-	-	-

Note:
This table reflects the OLS results of wage elasticities but the sample was seperated in the same manner as in Table 7 to be consistency

AARI: At or Above Reference Income
BRI: Below Reference Income

Standard error is denoted by parenthesis

Table 4: Two Stage Least Square Estimation of Self-Employed Male Physicians Labor Supply where Reference Income is mean income within a specialty

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
lnwagepathat	-0.533	-0.157	-0.811	-0.519	-0.159	-0.792
	(0.126)	(0.171)	(0.184)	(0.126)	(0.171)	(0.183)
Inverse Mills Ratio	-	-	-	-0.219	0.126	-0.379
				(0.040)	(0.064)	(0.069)
belowrefinc	-0.412	-	-	-0.412	-	-
	(0.005)			(0.005)		
Physicians Characteristics						
exp1to5	0.022	0.028	0.007	-0.008	0.043	-0.040
	(0.010)	(0.014)	(0.015)	(0.011)	(0.016)	(0.017)
exp6to14	0.021	-0.012	0.043	-0.059	0.029	-0.101
	(0.012)	(0.016)	(0.017)	(0.019)	(0.026)	(0.031)
exp15to24	0.011	-0.031	0.045	-0.079	0.016	-0.122
	(0.014)	(0.019)	(0.020)	(0.022)	(0.030)	(0.036)
parttime	-0.135	-0.157	-0.114	-0.055	-0.199	0.032
	(0.018)	(0.024)	(0.026)	(0.023)	(0.032)	(0.037)
fmg	0.005	0.020	-0.015	-0.012	0.028	-0.047
	(0.007)	(0.009)	(0.010)	(0.008)	(0.010)	(0.012)
internal_med	0.053	0.070	0.032	0.070	0.061	0.064
	(0.007)	(0.010)	(0.011)	(0.008)	(0.011)	(0.013)
pediatrics	0.051	0.029	0.064	0.080	0.014	0.121
	(0.010)	(0.014)	(0.016)	(0.012)	(0.016)	(0.019)
medical_specialties	0.254	0.190	0.290	0.319	0.155	0.416
	(0.036)	(0.049)	(0.053)	(0.038)	(0.052)	(0.057)
surgical_specialties	0.306	0.182	0.388	0.343	0.160	0.459
	(0.056)	(0.077)	(0.082)	(0.057)	(0.077)	(0.083)
psychiatry	-0.031	-0.098	0.006	-0.081	-0.073	-0.085
	(0.023)	(0.032)	(0.034)	(0.025)	(0.034)	(0.037)
obgyn	0.234	0.161	0.279	0.262	0.144	0.331
	(0.041)	(0.055)	(0.060)	(0.041)	(0.056)	(0.061)
board_cert	0.007	-0.053	0.050	-0.057	-0.020	-0.065
	(0.014)	(0.020)	(0.020)	(0.018)	(0.026)	(0.029)
white	0.000	-0.015	0.010	-0.038	0.005	-0.061
	(0.013)	(0.019)	(0.018)	(0.015)	(0.021)	(0.022)
asian	0.000	-0.044	0.036	-0.052	-0.017	-0.061
	(0.017)	(0.024)	(0.024)	(0.020)	(0.028)	(0.030)
black	0.007	0.074	-0.045	0.011	0.071	-0.039
	(0.019)	(0.028)	(0.026)	(0.019)	(0.028)	(0.026)

Table 4: Two Stage Least Square Estimation of Self-Employed Male Physicians Labor Supply where Reference Income is mean income within a specialty (Cont.)

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
Practice Characteristics						
solo	0.005	0.110	-0.080	0.126	0.046	0.142
	(0.028)	(0.038)	(0.041)	(0.036)	(0.050)	(0.058)
smallgroup	0.014	0.042	-0.016	0.048	0.024	0.049
	(0.011)	(0.014)	(0.017)	(0.012)	(0.016)	(0.021)
multispec	0.020	-0.032	0.049	-0.031	-0.005	-0.048
	(0.015)	(0.019)	(0.023)	(0.017)	(0.024)	(0.029)
multpr	-0.002	0.034	-0.028	0.025	0.020	0.022
	(0.011)	(0.015)	(0.016)	(0.012)	(0.017)	(0.018)
Regional Characteristics						
northeast	-0.007	-0.008	-0.007	-0.021	-0.001	-0.037
	(0.008)	(0.010)	(0.012)	(0.008)	(0.011)	(0.013)
south	0.009	0.003	0.016	-0.016	0.016	-0.035
	(0.007)	(0.009)	(0.011)	(0.008)	(0.011)	(0.014)
west	0.007	0.010	0.003	0.038	-0.007	0.061
	(0.009)	(0.012)	(0.013)	(0.011)	(0.015)	(0.017)
urban	-0.007	0.012	-0.046	0.055	-0.021	0.076
	(0.017)	(0.021)	(0.030)	(0.021)	(0.027)	(0.037)
smallmetro	0.002	-0.005	0.013	-0.016	0.004	-0.022
	(0.012)	(0.015)	(0.022)	(0.013)	(0.015)	(0.023)
nonmetro	0.035	0.029	0.063	-0.023	0.060	-0.051
	(0.016)	(0.018)	(0.028)	(0.019)	(0.024)	(0.035)
year_99	-0.018	-0.030	-0.008	-0.031	-0.024	-0.034
	(0.006)	(0.008)	(0.009)	(0.006)	(0.009)	(0.010)
Constant	6.260	4.688	7.044	6.446	4.563	7.383
	(0.525)	(0.713)	(0.765)	(0.525)	(0.715)	(0.764)
N	6645	3563	3082	-	-	-

Note:
Sample was seperated into AARI and BRI by comparing predicted income (predicted wage x weekly hours x # of weeks worked) with Reference Income which was Mean Income Within a specialty

AARI: At or Above Reference Income
BRI: Below Reference Income

Standard error is denoted by parenthesis

Table 5: Two Stage Least Square Estimation of Self-Employed Male Physicians Labor Supply where Reference Income is mean income within a specialty with top and bottom 1% of outliers removed						
	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
lnwagepathat	-0.502	-0.081	-0.797	-0.481	-0.083	-0.777
	(0.150)	(0.205)	(0.217)	(0.150)	(0.205)	(0.216)
Inverse Mills Ratio	-	-	-	-0.273	0.096	-0.405
				(0.043)	(0.069)	(0.070)
belowrefinc	-0.403	-	-	-0.403	-	-
	(0.005)			(0.005)		
Physicians Characteristics						
exp1to5	0.024	0.031	0.009	-0.011	0.042	-0.040
	(0.010)	(0.014)	(0.015)	(0.012)	(0.016)	(0.017)
exp6to14	0.022	-0.016	0.048	-0.073	0.014	-0.098
	(0.012)	(0.016)	(0.017)	(0.019)	(0.027)	(0.030)
exp15to24	0.012	-0.034	0.046	-0.093	0.000	-0.119
	(0.014)	(0.019)	(0.020)	(0.022)	(0.031)	(0.035)
parttime	-0.138	-0.155	-0.120	-0.023	-0.192	0.059
	(0.017)	(0.024)	(0.025)	(0.025)	(0.036)	(0.039)
fmg	0.005	0.023	-0.018	-0.011	0.028	-0.044
	(0.007)	(0.009)	(0.010)	(0.007)	(0.010)	(0.011)
internal_med	0.049	0.066	0.028	0.064	0.061	0.053
	(0.007)	(0.010)	(0.011)	(0.008)	(0.010)	(0.012)
pediatrics	0.051	0.024	0.069	0.086	0.013	0.126
	(0.012)	(0.016)	(0.017)	(0.013)	(0.018)	(0.019)
medical_specialties	0.245	0.164	0.291	0.317	0.140	0.412
	(0.045)	(0.061)	(0.065)	(0.046)	(0.063)	(0.068)
surgical_specialties	0.297	0.149	0.394	0.343	0.132	0.471
	(0.069)	(0.093)	(0.099)	(0.069)	(0.094)	(0.100)
psychiatry	-0.038	-0.116	0.006	-0.110	-0.094	-0.107
	(0.026)	(0.036)	(0.038)	(0.029)	(0.039)	(0.042)
obgyn	0.222	0.132	0.276	0.254	0.120	0.330
	(0.049)	(0.066)	(0.071)	(0.049)	(0.067)	(0.071)
board_cert	0.007	-0.053	0.044	-0.069	-0.029	-0.072
	(0.015)	(0.021)	(0.020)	(0.019)	(0.027)	(0.028)
white	-0.004	-0.028	0.012	-0.060	-0.011	-0.076
	(0.015)	(0.022)	(0.021)	(0.017)	(0.025)	(0.026)
asian	-0.003	-0.057	0.037	-0.075	-0.035	-0.075
	(0.019)	(0.028)	(0.027)	(0.022)	(0.032)	(0.033)
black	0.002	0.050	-0.040	-0.017	0.055	-0.072
	(0.017)	(0.026)	(0.023)	(0.017)	(0.026)	(0.024)

Table 5: Two Stage Least Square Estimation of Self-Employed Male Physicians Labor Supply where Reference Income is mean income within a specialty with top and bottom 1% of outliers removed (Cont.)

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
Practice Characteristics						
solo	0.006	0.117	-0.080	0.147	0.071	0.139
	(0.031)	(0.042)	(0.045)	(0.038)	(0.053)	(0.058)
smallgroup	0.013	0.045	-0.020	0.052	0.033	0.043
	(0.012)	(0.016)	(0.018)	(0.013)	(0.018)	(0.021)
multispec	0.015	-0.039	0.046	-0.050	-0.017	-0.058
	(0.016)	(0.021)	(0.024)	(0.019)	(0.026)	(0.030)
multpr	0.004	0.037	-0.018	0.035	0.028	0.029
	(0.011)	(0.015)	(0.015)	(0.012)	(0.017)	(0.017)
Regional Characteristics						
northeast	-0.009	-0.014	-0.007	-0.033	-0.007	-0.046
	(0.008)	(0.011)	(0.012)	(0.009)	(0.012)	(0.014)
south	0.009	0.004	0.013	-0.021	0.014	-0.038
	(0.007)	(0.009)	(0.011)	(0.008)	(0.011)	(0.014)
west	0.009	0.009	0.006	0.042	-0.002	0.058
	(0.008)	(0.011)	(0.012)	(0.010)	(0.014)	(0.015)
urban	-0.016	0.009	-0.055	0.055	-0.015	0.062
	(0.017)	(0.021)	(0.030)	(0.021)	(0.027)	(0.036)
smallmetro	-0.001	-0.012	0.015	-0.032	-0.002	-0.037
	(0.012)	(0.014)	(0.022)	(0.013)	(0.016)	(0.023)
nonmetro	0.037	0.029	0.061	-0.042	0.055	-0.069
	(0.015)	(0.018)	(0.027)	(0.019)	(0.025)	(0.035)
year_99	-0.017	-0.031	-0.006	-0.031	-0.026	-0.030
	(0.006)	(0.009)	(0.009)	(0.007)	(0.009)	(0.010)
Constant	6.127	4.383	6.983	6.359	4.285	7.372
	(0.622)	(0.847)	(0.899)	(0.621)	(0.850)	(0.897)
N	6514	3412	3102	-	-	-

Note:
Top and bottom one percent of the wage outliers were removed

Sample was seperated into AARI and BRI by comparing predicted income (predicted wage x weekly hours x # of weeks worked) with Reference Income which was Mean Income Within a specialty

AARI: At or Above Reference Income
BRI: Below Reference Income

Standard error is denoted by parenthesis

Table 6: Two Stage Least Square Estimation of Self-Employed Male Physicians Labor Supply where Reference Income is mean income within a specialty with top and bottom 5% of outliers removed

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
lnwagepathat	-0.542	-0.271	-0.708	-0.534	-0.274	-0.709
	(0.120)	(0.168)	(0.169)	(0.120)	(0.168)	(0.169)
Inverse Mills Ratio	-	-	-	-0.232	0.117	-0.271
				(0.052)	(0.084)	(0.076)
belowrefinc	-0.383	-	-	-0.383	-	-
	(0.005)			(0.005)		
Physicians Characteristics						
exp1to5	0.029	0.036	0.015	0.012	0.044	-0.004
	(0.010)	(0.015)	(0.015)	(0.011)	(0.016)	(0.015)
exp6to14	0.030	0.006	0.043	-0.041	0.039	-0.043
	(0.009)	(0.013)	(0.013)	(0.018)	(0.027)	(0.027)
exp15to24	0.025	0.000	0.042	-0.048	0.033	-0.047
	(0.009)	(0.013)	(0.013)	(0.019)	(0.028)	(0.028)
parttime	-0.124	-0.099	-0.129	0.011	-0.162	0.032
	(0.010)	(0.016)	(0.014)	(0.032)	(0.049)	(0.047)
fmg	0.004	0.028	-0.020	-0.003	0.031	-0.030
	(0.006)	(0.009)	(0.009)	(0.007)	(0.009)	(0.010)
internal_med	0.049	0.061	0.037	0.058	0.057	0.048
	(0.007)	(0.010)	(0.011)	(0.008)	(0.010)	(0.011)
pediatrics	0.054	0.029	0.074	0.073	0.020	0.097
	(0.012)	(0.017)	(0.017)	(0.013)	(0.018)	(0.018)
medical_specialties	0.260	0.211	0.283	0.317	0.185	0.357
	(0.039)	(0.054)	(0.055)	(0.041)	(0.057)	(0.059)
surgical_specialties	0.323	0.227	0.378	0.362	0.209	0.431
	(0.057)	(0.080)	(0.081)	(0.058)	(0.081)	(0.082)
psychiatry	-0.031	-0.083	-0.004	-0.087	-0.057	-0.073
	(0.022)	(0.030)	(0.031)	(0.025)	(0.036)	(0.037)
obgyn	0.244	0.185	0.279	0.267	0.174	0.309
	(0.043)	(0.059)	(0.061)	(0.043)	(0.060)	(0.061)
board_cert	0.020	-0.003	0.034	-0.011	0.012	-0.003
	(0.009)	(0.013)	(0.012)	(0.011)	(0.017)	(0.016)
white	-0.007	-0.004	-0.010	-0.023	0.003	-0.030
	(0.012)	(0.017)	(0.016)	(0.012)	(0.018)	(0.017)
asian	-0.012	-0.033	0.003	-0.050	-0.015	-0.044
	(0.015)	(0.021)	(0.021)	(0.017)	(0.025)	(0.025)
black	-0.010	0.046	-0.053	0.011	0.035	-0.028
	(0.018)	(0.027)	(0.024)	(0.019)	(0.028)	(0.025)

Table 6: Two Stage Least Square Estimation of Self-Employed Male Physicians Labor Supply where Reference Income is mean income within a specialty with top and bottom 5% of outliers removed (Cont.)

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
Practice Characteristics						
solo	-0.012	0.052	-0.057	0.074	0.011	0.047
	(0.018)	(0.025)	(0.025)	(0.026)	(0.038)	(0.039)
smallgroup	0.005	0.029	-0.018	0.030	0.017	0.013
	(0.009)	(0.012)	(0.014)	(0.011)	(0.015)	(0.016)
multispec	0.017	-0.016	0.034	-0.042	0.012	-0.039
	(0.012)	(0.016)	(0.018)	(0.018)	(0.026)	(0.027)
multpr	0.002	0.032	-0.017	0.027	0.020	0.013
	(0.010)	(0.015)	(0.015)	(0.012)	(0.017)	(0.017)
Regional Characteristics						
northeast	-0.012	-0.013	-0.010	-0.027	-0.006	-0.029
	(0.007)	(0.010)	(0.011)	(0.008)	(0.011)	(0.012)
south	0.005	0.001	0.010	-0.020	0.013	-0.023
	(0.007)	(0.009)	(0.010)	(0.009)	(0.012)	(0.013)
west	-0.001	-0.006	0.003	0.020	-0.016	0.028
	(0.008)	(0.011)	(0.011)	(0.009)	(0.013)	(0.013)
urban	-0.016	-0.006	-0.042	0.036	-0.032	0.022
	(0.017)	(0.020)	(0.028)	(0.020)	(0.028)	(0.033)
smallmetro	-0.006	-0.019	0.010	-0.036	-0.004	-0.027
	(0.012)	(0.015)	(0.021)	(0.014)	(0.018)	(0.023)
nonmetro	0.038	0.039	0.057	-0.016	0.065	-0.009
	(0.016)	(0.020)	(0.028)	(0.020)	(0.027)	(0.033)
year_99	-0.017	-0.026	-0.007	-0.027	-0.021	-0.020
	(0.005)	(0.007)	(0.008)	(0.006)	(0.008)	(0.009)
Constant	6.282	5.129	6.628	6.471	5.034	6.892
	(0.502)	(0.703)	(0.709)	(0.503)	(0.706)	(0.711)
N	5983	3033	2950	-	-	-

Note:
Top and bottom one percent of the wage outliers were removed

Sample was seperated into AARI and BRI by comparing predicted income (predicted wage x weekly hours x # of weeks worked) with Reference Income which was Mean Income Within a specialty

AARI: At or Above Reference Income
BRI: Below Reference Income

Standard error is denoted by parenthesis

Table 7: Two Stage Least Square Estimation of Self-Employed Male Physicians Labor Supply where Reference Income is Median Income within a specialty

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
lnwagepathat	-0.298	0.080	-0.716	-0.290	0.079	-0.699
	(0.127)	(0.164)	(0.201)	(0.127)	(0.164)	(0.200)
Inverse Mills Ratio	-	-	-	-0.124	0.099	-0.324
				(0.034)	(0.051)	(0.066)
belowrefinc	-0.419	-	-	-0.419	-	-
	(0.005)			(0.005)		
exp1to5	0.029	0.038	0.016	0.017	0.046	-0.010
	(0.010)	(0.013)	(0.016)	(0.011)	(0.014)	(0.016)
exp6to14	0.002	-0.026	0.033	-0.041	0.004	-0.085
	(0.012)	(0.015)	(0.018)	(0.016)	(0.022)	(0.030)
exp15to24	-0.008	-0.043	0.037	-0.052	-0.011	-0.093
	(0.014)	(0.018)	(0.022)	(0.019)	(0.024)	(0.034)
parttime	-0.158	-0.187	-0.118	-0.112	-0.220	0.014
	(0.018)	(0.023)	(0.028)	(0.022)	(0.029)	(0.039)
fmg	-0.003	0.012	-0.027	-0.014	0.019	-0.058
	(0.007)	(0.009)	(0.011)	(0.008)	(0.010)	(0.013)
internal_med	0.061	0.069	0.044	0.075	0.059	0.087
	(0.007)	(0.009)	(0.013)	(0.008)	(0.011)	(0.015)
pediatrics	0.037	0.010	0.069	0.051	0.000	0.115
	(0.010)	(0.013)	(0.017)	(0.011)	(0.014)	(0.020)
medical_specialties	0.203	0.125	0.282	0.246	0.093	0.414
	(0.037)	(0.047)	(0.058)	(0.038)	(0.050)	(0.063)
surgical_specialties	0.234	0.097	0.380	0.270	0.068	0.492
	(0.057)	(0.073)	(0.090)	(0.058)	(0.075)	(0.092)
psychiatry	-0.072	-0.135	-0.014	-0.100	-0.116	-0.093
	(0.023)	(0.030)	(0.037)	(0.025)	(0.032)	(0.040)
obgyn	0.182	0.101	0.265	0.208	0.081	0.343
	(0.041)	(0.053)	(0.066)	(0.042)	(0.054)	(0.067)
board_cert	-0.018	-0.067	0.034	-0.052	-0.043	-0.062
	(0.014)	(0.019)	(0.021)	(0.017)	(0.023)	(0.029)
white	-0.010	-0.020	0.002	-0.029	-0.007	-0.053
	(0.013)	(0.018)	(0.020)	(0.014)	(0.019)	(0.023)
asian	-0.017	-0.052	0.028	-0.043	-0.035	-0.049
	(0.017)	(0.023)	(0.026)	(0.019)	(0.025)	(0.030)
black	0.040	0.107	-0.029	0.051	0.098	0.001
	(0.019)	(0.027)	(0.027)	(0.019)	(0.027)	(0.028)

Table 7: Two Stage Least Square Estimation of Self-Employed Male Physicians Labor Supply where Reference Income is Median Income within a specialty (Cont.)

	Full Sample (a)	AARI (b)	BRI (c)	Full Sample (d)	AARI (e)	BRI (f)
Practice Characteristics						
solo	0.060	0.148	-0.039	0.125	0.101	0.148
	(0.028)	(0.037)	(0.045)	(0.034)	(0.044)	(0.059)
smallgroup	0.030	0.053	0.002	0.047	0.040	0.054
	(0.011)	(0.013)	(0.019)	(0.012)	(0.015)	(0.021)
multispec	-0.001	-0.052	0.043	-0.028	-0.032	-0.035
	(0.015)	(0.019)	(0.025)	(0.017)	(0.021)	(0.029)
multpr	0.011	0.042	-0.019	0.026	0.031	0.026
	(0.011)	(0.015)	(0.017)	(0.012)	(0.016)	(0.019)
Regional Characteristics						
northeast	-0.003	-0.003	-0.005	-0.007	-0.001	-0.018
	(0.008)	(0.010)	(0.013)	(0.008)	(0.010)	(0.013)
south	0.006	0.005	0.009	-0.007	0.014	-0.034
	(0.007)	(0.009)	(0.012)	(0.008)	(0.010)	(0.015)
west	0.016	0.019	0.010	0.032	0.007	0.057
	(0.009)	(0.012)	(0.014)	(0.010)	(0.013)	(0.017)
urban	-0.007	0.003	-0.039	0.023	-0.019	0.055
	(0.017)	(0.020)	(0.033)	(0.019)	(0.024)	(0.038)
smallmetro	0.000	-0.005	0.012	-0.010	0.003	-0.023
	(0.013)	(0.014)	(0.025)	(0.013)	(0.015)	(0.026)
nonmetro	0.045	0.049	0.058	0.017	0.070	-0.031
	(0.016)	(0.018)	(0.031)	(0.018)	(0.021)	(0.036)
year_99	-0.023	-0.033	-0.011	-0.028	-0.030	-0.028
	(0.006)	(0.008)	(0.010)	(0.006)	(0.008)	(0.010)
Constant	5.238	3.653	6.593	5.312	3.572	6.805
	(0.530)	(0.682)	(0.834)	(0.530)	(0.683)	(0.831)
N	6651	4026	2625	-	-	-

Note:
Sample was seperated into AARI and BRI by comparing predicted income (predicted wage x weekly hours x # of weeks worked) with Reference Income which was Median Income Within a specialty

AARI: At or Above Reference Income
BRI: Below Reference Income

Standard error is denoted by parenthesis

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Chapter 2
Not Having Medicare for All: What Are the Losses?

JEL classification: I18 - Government Policy; Regulation; Public Health; I38 - Government Policy; Provision and Effects of Welfare Programs

Keywords: Health Insurance, Medicare, Medical Expenditures, Health Status

2.1 Introduction

For a very long time, providing access to health insurance is a major public policy issue. According to the 2005 health insurance data (DeNavas-Walt et al. 2006), among the insured individuals, 67.7% were privately insured, among them, 59.5% were employment-based insured and the remaining were direct purchases. It suggests that health benefits in the U.S. remain heavily employment-based for all insured individuals. The majority of Americans have health insurance either through their own, spouse's, or parents' employment. Besides private health insurance, the U.S. government also provides public sources of coverage such as Medicare and Medicaid. Medicare is the largest public coverage program with 42.4 million enrollees or 14% of the population (Kaiser 2005). The majority of Medicare beneficiaries are elderly individuals age 65 and older[11]. More than 96% of elderly, (older than 65) were covered by Medicare in 2001 (EBRI 2003). Medicare becomes the major source of health insurance coverage for previously uninsured individuals once they qualify. The second largest public coverage is Medicaid which is only available to those who can pass the income and resource means test.

According to DeNavas-Walt et al. (2006), the public insurance rate remained stable between 2004 and 2005, private insurance rate decreased and the uninsured rate increased. Although the poor can be eligible for Medicaid, many participants in the labor force do not have adequate access to health care through their employer and they may not be poor enough to qualify for the public assistance program. These individuals are most

[11] Other beneficiaries include people under age 65 with disabilities and people with end-stage renal disease (permanent kidney failure requiring dialysis or a kidney transplant) (CMS, 2006).

likely to decline employer coverage because it is too expensive. Since 2000, over 3 million people have lost employer-based insurance. The rate of uninsured full-time workers has increased by 13 percent since 2000. Furthermore, 46.6 million Americans lacked health insurance in 2005, which increased by 17%, or 6.8 million, from 2000 (DeNavas-Walt et al. 2006).

These facts suggest that typical workers in the U.S. are worse off today than they were in 2000. Among them, the most vulnerable people are the near elderly since they are ineligible for public insurance assistance and cannot afford private coverage; however, they need regular health care because they are aging. For the near elderly, between ages 55 and 64 prior to entering Medicare, around 13.6% of the population are still uninsured even under the public insurance program in 2005 (EBRI 2007).

The consequences of being uninsured before being Medicare eligible age have been discussed in several studies (Baker et al. 2001, 2002; McWilliams et al. 2004; Dor et al. 2006). They found that uninsured near elderly have a greater decline in their overall health and a greater chance of premature death than their insured counterparts. Other studies have (McWilliams et al. 2003; Card et al. 2004; Decker 2005; Dave and Kaestner 2006) examined how prior insurance status before entering Medicare affects the utilizations of medical services after one enters Medicare. The findings suggest that there is an increased usage of health services among previously uninsured individuals once they enter Medicare, compared to those who had been fully insured.

At the same time, statistics have shown that Medicare spending grew at an average rate of 9% between 1970 and 2003 and it will keep growing because of the effectiveness of prescription drug plans (Cubanski et al. 2005: Section 6). Annual growth in Medicare spending will be influenced by other factors including increasing volume and utilization of services, increasing prices of health care services, and expensive new technologies. Looking at the future, Medicare faces many challenges, but none greater than financing health care for aging population especially baby-boomer's generation with a declining ratio of workers to beneficiaries. The old age dependency ratio (OADR), which is population aged 65 and over divided by population aged 20 to 65 is estimated to rise from 2010 to 2030 and eventually by 2070 OADR is projected to double to 0.47. As OADR ratio increases, the demand for health services will increase, and it is estimated by Lee and Skinner (1999) and MEDPAC (2006) that Medicare trust fund might go bankrupt. Thus the transition of these uninsured baby-boomers into the Medicare system may lead to high use of health services inefficiently. By inefficiency, we mean excess demand due to the fact that they were delaying care; either because they did not have access to health services due to lack of health insurance or they were unable to afford health care, as found by Card et al. (2004) and McWilliams et al. (2003).

These research findings raise some important policy questions which have been recently addressed by Hadley and Waidmann (2006), namely: "Does lack of insurance prior to age 65 result in people qualifying for Medicare in worse health than if they had been insured? If so, is public insurance spending through Medicare and

Medicaid on newly enrolled beneficiaries greater than it would be if people had continuous insurance coverage prior to age 65?" And then, they estimate the effects of having health insurance on health at age 63 or 64, just before one qualifies for Medicare, and simulate the total Medicare and Medicaid expenditures on newly enrolled beneficiaries in their first years of Medicare coverage.

Based on these previous studies, our analysis extends the discussion in several ways. First, multiple studies (Hadley and Waidmann 2003; Bhattacharya et al. 2005; Lakdawalla et al. 2005; Joyce et al. 2005; Chernew et al. 2005; Goldman et al. 2005; Shekelle et al. 2005; Hadley and Waidmann 2006) examined the medical expenditures of previously uninsured people after they entered Medicare. These studies use microsimulation methods based on the analysis of insurance coverage, health, and health care utilization prior to age 65 to project future spending. Our study uses longitudinal survey data from the Health and Retirement Study (HRS) to explore the real medical spending among previously uninsured people after they enter Medicare. This will reflect the real spending patterns and can overcome the limitation of simulation studies.

Second, prior studies on health status only focus on health outcomes before an uninsured enters Medicare and the mortality outcomes. Previous studies have not explored the effects of Medicare coverage on overall health change among uninsured individuals after they enter Medicare which we do in our analysis.

Third, earlier studies did not capture the long run impact of uninsured on medical spending and health outcome when an individual enters Medicare,. We test how access to private health insurance before entering Medicare affects medical expenditures and health outcomes 2, 4 and 6 years after entering Medicare.

The major finding of this study is that lack of private health insurance coverage before coming into Medicare increases total medical expenditures of previously uninsured elderly by 5 times, compared to previously insured people once they enter Medicare. During the same period, previously uninsured elderly temporarily improved their health status compared to insured individuals. This evidence suggests that the uninsured people gain through health investment and the effects are more significant for males than females. However, in the long-run, the insured people consistently consume more medical services whereas the uninsured people do not utilize as much as the insured, and which reflects on their worse health gap even after we control for mortality. Furthermore, the gap of medical expenditures between the insured and uninsured totally goes away in the long run. Subsequently, expanding private coverage to the uninsured, especially males should result in substantial savings after they enter Medicare and will result in better health in the long run. This has important Medicare policy implications when one considers the solvency issues and an aging baby-boomer population.

The plan of this paper is as follows: Section 2 summarizes the relevant literature on the determination and measurement of medical expenditures as well as health status. Section 3 presents the methodological approach and estimation framework.

Section 4 presents data and variable definition and Section 5 demonstrates the econometric specification. Section 6 will discuss the implications of the results and address the future work of our study.

2.2 Literature Review

This section is divided into three parts based on themes that are closely related to our study. In Section 2.1, we will discuss the current literature that surrounds our topic. Section 2.2 will be focused on medical expenditures, followed by section 2.3 which focuses on the use and the effect of health insurance on health and section 2.4 covers literature of health measurements.[12]

2.2.1 Before and After Medicare

To our knowledge there are four studies, namely: McWilliams et al. 2003; Card et al. 2004; Decker 2005; Dave and Kaestner 2006 that focus on how insurance status prior to entering Medicare affects health status and usage of medical services after one enters the Medicare system.

[12] Hadley (2003) did a good literature summary on the consequences of being uninsured which reviews the topics on health insurance, medical care use, health, work, and income. Based on his work, we extend the literature more related to our study.

In McWilliams et al. (2003) longitudinal data were used from HRS and individuals were followed for 3 periods (1996, 1998, and 2000). The study addressed the use of basic clinical services, such as cholesterol testing, mammography, prostate examination and found that the uninsured increased their use of 'basic clinical services but not medication' after obtaining Medicare coverage. We know from Kasper et al. (2000) that health insurance has a great impact on ability to access care and 'may affect health status' and McWilliams et al. (2003) confirms that by showing increase in the use of health services after one enter the Medicare program. Card et al. (2004) used repeated cross section data from National Health Interview Survey (NHIS) and Behavioral Risk Factor Surveillance System (BRFSS) apart from hospital discharge data from Florida and California to explore medical utilization changes after one enters Medicare. Their main finding was that eligibility to Medicare leads to increase in hospital stays for elective procedures, and reduction in the differences in access to medical care after coming into Medicare among those who were uninsured previously. In general the study conducted by Card et al. (2004) and McWilliams et al. (2003) addresses the health service issue, for example hospitalization, and preventive testing when one comes into Medicare.

Decker (2005) investigates the effect of health insurance and use of health services by looking into the change[13] of health insurance status as females enter Medicare. Decker (2005) looks into the use of mammography screening using HRS data and finds that the use of "mammography services increase discontinuously at age 65, especially for woman without a high school degree and for black and Hispanic

[13] After entering Medicare, the uninsured females become insured since they have access to Medicare

woman," a group that is usually reflected mostly as being uninsured. Dave and Kaestner (2006) analyze "the effect of health insurance on health behaviors by allowing for the possibility that Medicare has a direct and indirect effect on health behaviors." Dave and Kaestner (2006) find that unlike prior studies, obtaining health insurance in the form of Medicare does reduce prevention and increases unhealthy behavior among Medicare recipients once they contact medical professionals after entering Medicare.

2.2.2 Medical Expenditures

Multiple studies have measured medical expenditures to date. Those studies (Duan 1983; Mullahy 1998; Jones 2000; Manning and Mullahy 2001; Manning et al. 2005) capture the skewed outcomes of health expenditures and provide a number of alternative approaches to estimate expenditures, including ordinary least squares on ln(y) and generalized linear models. These studies also summarize that no single estimator is the best under all conditions examined, so the researchers should choose the most appropriate estimator in their studies.

Most recent studies on Medicare expenditures have focused on simulation based methods[14] where they project the future Medicare expenditures based on relationship

[14] See Hadley and Waidmann (2003); Bhattacharya et al. (2005); Lakdawalla et al. (2005); Joyce et al. (2005); Chernew et al. (2005); Goldman et al. (2005); Shekelle et al. (2005); Hadley and Waidmann (2006)

between health insurance, health outcome, and health expenditures before people enter Medicare.

Others, like Levinsky et al. (2001) investigate medical expenditures and medical care in the last year of life of Medicare patients. Their study includes results from both Part A and Part B of Medicare recipients from California and Massachusetts. Levinsky et al. (2001) found that Medicare expenditures decreased with age but increased with increasing levels of comorbidity but at each level of comorbidity expenditures decreased with age. For example, each additional year of age reflected $413 and $408 decrease in medical expenditure in Massachusetts and California. Physician services and outpatient medical care also decreased with age but expenditures on skilled nursing facilities and home health services increased with age. The authors conclude that the decrease in expenditure with age in the last year of life is a result of less aggressive care as once ages. Furthermore, 80% of the decrease in total expenditure is accounted for by decrease in hospital services. Also ICU care decreased with age as does the "frequency of use of ventilators and pulmonary artery monitors, even in persons admitted to ICU." Seshamani and Gray (2004) conducted a similar study, and found the effect of age and time to death on hospital costs using data from Oxford Record Linkage Study (ORLS) from Great Britain. Their finding suggests that average hospital costs increased 7 times in the last three years of life compared to a 30% increase from age 65 to 80. Nearly half of the patients hospitalized in the last year of life have never been admitted to a hospital after turning to age 65. This might be similar to individuals who enter hospital six years after obtaining Medicare, which we see in our data. Just like Levinsky et al. (2001) study cost

increases significantly between age 65 and 80, but decreases to age 95 following "decline in probability of hospitalization in the oldest old."[15]

2.2.3 Use and Effect of Health Insurance on Health Status

There have been a number of studies that have tried to estimate the effect of insurance on health. Mirowsky and Ross (1998) find that there are no significant affects of private or public health insurance on health outcomes, where as Baker et al. (2001) find small but positive and significant effects of private insurance on self-reported health and physical functioning if appropriate lags are allowed. Earlier studies have used mortality primarily as a health outcome measure[16], rather than actual measure of health. Where as Dor et al. (2006) is one of the first to use a 'composite health score' derived from observational health status, which is similar of SF-36. Dor et al. (2006) also addresses the endogeneity of health insurance by using state-level marginal tax rates, like in Royalty (2000) and Gruber (2001). Additionally Dor et al. (2006) also uses two-state level variables, unionization rate and unemployment rate to address endogeneity and their overall finding suggests that the effect of private insurance on health may be larger than previously estimated but they suggest trying other instrumental variable techniques.

[15] This decrease in medical cost is consistent with other studies, Busse et al., 2002; Garber et al., 1998; Hogan et al., 2001; Levinsky et al, 2001; Long and Marshall, 200; Lubitz abd Prihoda, 1984; Lubitz and Riley, 1993; Pearls and Wood, 1996; Riley et al., 1987.

[16] See Franks, Clancy and Gold 1993; Sorlie et al. 1994)

2.2.4 Use of Health Measures from Survey Data: Objective vs. Subjective

There exists a large literature on using survey based health measures. These measures appear in similar wordings across all major national survey like the Health and Retirement Study (HRS). These health measurements are divided among two main categories, namely subjective health measure, and objective measure. For subjective health measures, individuals would answer a global question on self report of health, like the following 'How would you rate your current health status' and they will have from the following choices: excellent, very good, good, fair and poor. Where as objective measures will focus on physical limitation such as Activities of Daily Living (ADL[17]), which consists of bathing, dressing, eating, getting in and out of bed, and walking across the room. There is an extension of objective measure for which there exists self reports of specific medical diagnosis. Dwyer (1996) finds that there is no significant difference between different health measures, namely ADL or Self Reported Health. Perry and Rosen (2001) states that "objective measures give the same exact answer as subjective measures when testing the differences in health status between wage earners and self-employed." Additionally Hurd and McGarry (1997) finds that the subjective probabilities of survival vary the same way as actual health outcomes. Baker (1995) calculates change of self- report health between waves to reflect the change in overall health status. Benitez-Silva and Ni (2006) recommend using self-report change of health instead of using calculated change of self-report health

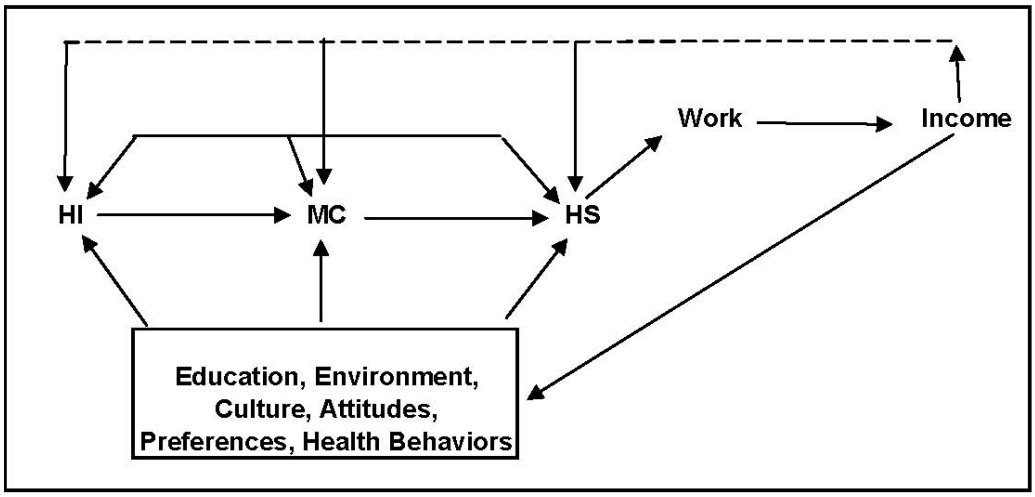
[17] ADL is a dichotomous variable indicating the presence of problems with any activities of daily living.

as calculated change of self-report health is noisier compared to self-report change of health when they study longevity among HRS sample.

2.3 Conceptual Framework

Hadley (2003) provides a general conceptual framework to organize the existing literature and connect the empirical findings on health insurance, medical care use, and health. Our study extends the questions which have been asked by Hadley (2003) and Hadley and Waidmann (2006), therefore, we use the theory framework from Hadley (2003) which has been shown in Figure 1 and 2. The model hypothesizes that health insurance influences the quantity and quality of medical care used; medical care use influences health; and other socio-economic characteristics affect medical care use and health.

Figure 1 shows a very simple framework between health insurance, medical care use, and health status, while the underlying reality is much more complex (Hadley 2003). First, medical care use and health status affect each other; second, health insurance and health also affect each other; other confounding factors influences health insurance, medical care use, and health status simultaneously. In our empirical work, we concentrate on the changes of medical care use and health status after people



Note: HI: Health Insurance MC: Medicare HS: Health Status

Figure 1: Conceptual Model of the Relationshsips between Health Insurance, Medical Care Use, Health Status and other factors

enter into Medicare given their private insurance status prior to entering Medicare. Therefore, the private health insurance status prior to entering Medicare can be considered as exogenous when estimating changes after Medicare. Thus, in our analysis, health insurance is affecting medical care use in a single direction and we suppose that demand for medical care is affected by health, socio- demographic characteristics, and other economic factors.

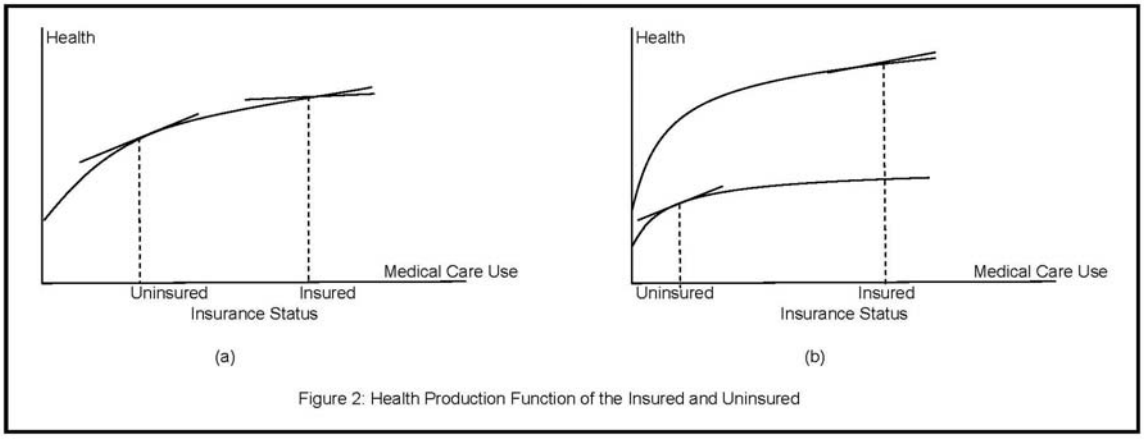


Figure 2: Health Production Function of the Insured and Uninsured

(a) (b)

There are also debates on the inter-relationship between medical care use and health outcome. Figure 2 shows a health production function presenting the hypothetical relationship between medical care use and health. Figure 2(a) assumes that insured and uninsured are on the same health production function but at different level of health care usage. It indicates that the uninsured are at a lower level of medical care consumption compared to the insured. Once uninsured have access to health care, they have higher return to health than the insured, which is reflected by the flatness of the health production function. However, Hadley (2003) points out when the relationship between medical care use and health is fundamentally different among the insured and the uninsured, they have two distinct health production functions as shown in Figure 2(b). The uninsured have relatively flat production over their entire range than the insured, this is mostly because the insured and the uninsured have different education, income, and social structures which make the uninsured "inefficient producers" of health. The theory implies that empirical findings may still reveal worse health among uninsured than among insured and uninsured would not improve their

health in spite of having access to increased medical care. Moreover, Grossman (1972) addresses that current health depends on prior health, health behaviors, basic sociodemographic characteristics, health care investment, including the extent of insurance coverage over the observation period, and health depreciation. What we measure in this study is the change of health status before and after people enter into Medicare, thus, the health change also depends on baseline health, basic socio-demographic characteristics, health investment, health behaviors, and health depreciation during this period of time.

2.4 Data

This paper uses a subsample from the Health and Retirement Study (HRS). HRS[18] is a nationally representative panel survey that samples 7,700 households aged from 51–61 with 9825 respondents in 1992, and then subsequently re-interviewed every two years until 2004. Spouses of these individuals were also interviewed regardless of their age. The main purpose of HRS is to study labor force change between work and retirement, with primary focus on health care needs and retirement benefits, thus the data set have rich information about health status, health insurance and medical expenses. HRS over samples blacks, Hispanics and Florida residents. The survey is funded by National Institute of Aging and conducted by the Survey Research Center at University of Michigan. Data of 7 waves are available to the public including

[18] Information is available via internet at http://hrsonline.isr.umich.edu/ for details.

those of 1992, 1994, 1996, 1998, 2000, 2002 and 2004. More importantly, it provides large enough sample of the elderly to measure their behaviors.

Our research objectives are to examine how private health insurance status before entering Medicare affects an individual's total medical expenditures and health outcome after they enter Medicare and what are the long-term consequences. We will answer the following questions: (1) Are the uninsured spending more after they enter Medicare? (2) What are the long-term medical expenditures patterns of the uninsured after they come into Medicare for 2, 4, and 6 years? (3) What are the health outcomes of the uninsured after they come into Medicare for 2, 4, and 6 years? (4) What is the gender difference in medical expenditures and health outcome after one comes into Medicare?

2.4.1 Data Structure

In order to observe the longitudinal effects of being uninsured, prior to entering Medicare, on the medical care spending and health outcome after entering Medicare, we need to follow each individual for multiple years. Prior studies have looked into only one wave after a respondent entered Medicare. HRS survey has been taken every two years since 1992, there are 7 waves of data already available. For this study we follow respondents for a period of 10 years or 5 waves, namely two waves prior to coming into Medicare and 3 waves after, between ages of 60 and 70.

We keep the respondents that were not enrolled in any public health insurance program (Medicare, Medicaid, Champus, and any other public insurance) in either two waves before they entered Medicare. Individuals who were covered by Medicare through disability are excluded, because our interests are near elderly's medical spending and health outcome. Some individuals lost Medicare coverage 1 wave or 2 waves after entering Medicare. This might be due to the misreporting by individuals and other unknown reasons. Therefore we drop this group of individuals to ensure that everybody in the sample was covered by Medicare for 3 consecutive waves. At the same time, some people died after they entered Medicare, even though we don't know the exact causes of death, we still keep those observations and generate a variable for mortality status and control for it in our multivariate analysis.[19]

Figure 3 shows the data processing procedure and structure on how we extract and pool the data. There were three groups or three cohorts of respondents, first cohort was Followed from 1992 (wave 1), second cohort of respondents were followed from 1994 (wave 2), and the third cohort of respondents were followed from 1996 (wave 3). This structure enabled us to observe a respondent once they entered Medicare for a long period. Note that each of these cohorts was followed for a period of 5 waves, which has

[19] We are also trying to generate another indicator on mortality if they died from diseases.

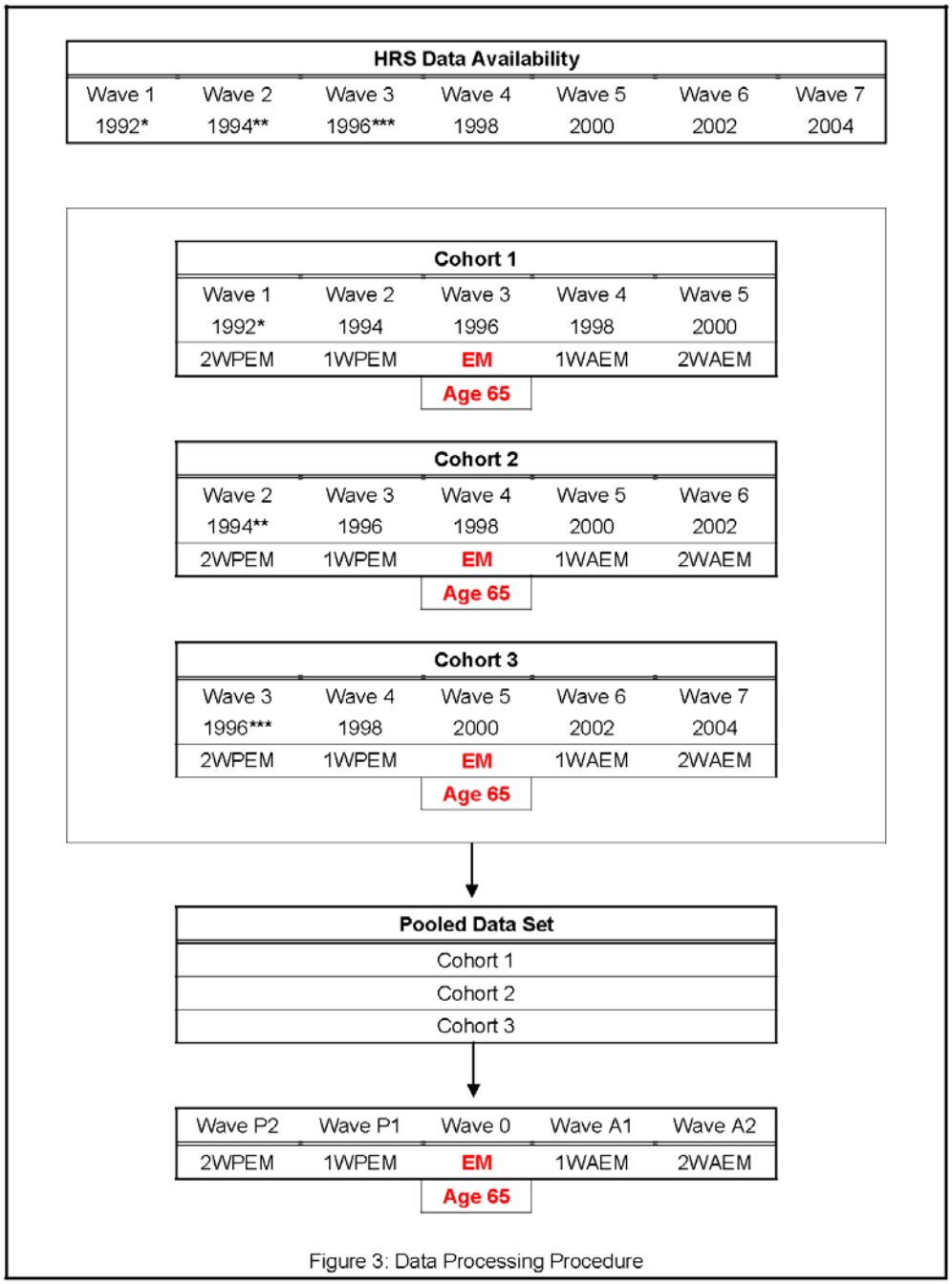


Figure 3: Data Processing Procedure

not been done before. First, we start from 1992 (wave 1) to observe if people entered Medicare in 1996 (wave 3) at age 65 and stayed with Medicare afterwards, and keep those observations who satisfy our data restriction criteria. We name these individuals as Cohort 1. Second, we trace those individuals who entered Medicare in 1998 (wave 4) at age 65 and name them as Cohort 2. Third, we preserve people who entered Medicare in

2000 (wave 5) at age 65 and name them as Cohort 3. Therefore, we generate three cohorts of observations as stated earlier. Respondents from cohort 1 are the follow-ups from 1992 (wave 1) to 2000 (wave 5), cohort 2 are follow-ups from 1994 (wave 2) to 2002 (wave 6), and cohort 3 are follow-ups from 1996 (wave 3) to 2004 (wave 7). The final step is to pool three cohorts of data together to get a pooled panel data set over 5 waves of people before and after entering Medicare. In this figure, "WPEM" means "Wave Prior Entering Medicare", and "WAEM" represents "Wave After Entering Medicare".[20]

2.4.2 Variable Description

This section is divided into two parts: dependent variables and independent variables. Detailed variable definitions are presented in Table 1.

Dependent Variables

There are three main dependent variables in this study, total medical expenditures[21], difference in total medical expenditures from previous wave and self-report change of health.

[20] For example 1WPEM means 1 wave prior to entering Medicare, where as 2WAEM means 2 waves after entering Medicare.

[21] In HRS an individual reports using a certain medical service and reports having partial or no insurance for that category, RAND HRS take the exact expenditure he/she reports and computes total medical expenditure. RAND HRS does not impute utilization. The question on total medical expenditure was not asked in wave 7. Thus our sample size for total medical expenditure equations is smaller than our health status equation. The continuous total medical expenditures are imputed in this version of the RAND HRS up to Wave 6, just like income and pensions variables. "The imputation algorithm is the same as used

As stated earlier, medical expenditures are usually highly skewed and heavily tailed, therefore, we take the log of the total medical expenditures as the dependent variable after conducting the Box-Cox test to get the appropriate transformation. In order to calculate the second dependent variable on difference in total medical expenditures from previous wave, we first take the log of the total medical expenditures of each wave, and then calculate the difference in log of total expenditures of every two adjacent waves. This is done when an individual enters Medicare, that is the difference between 1WPEM and EM, EM and 1WAEM, and 1WAEM and 2WAEM. The third dependent variable is the self-report change of health since last wave to measure the change of overall health status between two waves after entering Medicare. HRS asks this question to each individual in every wave. The other health measures include functional limitations and diagnosed health conditions which has been used as health measure previously. Due to the demographic characteristics of the sample in this study, the respondents are a homogenous group of elderly about age of 65 who have limited functional limitations, thus, ADLs and IADLs are not good measures for overall health measure. Also due to the reporting bias and diagnosis bias, not everybody can be correctly diagnosed for a specific disease. Therefore, it is not a good measure either. A third often used measure is the calculated change of self-report of health. Benitez-Silva and Ni (2006) show that self-report change of health is a reliable measure while the calculated change of self-report health has too much noise to reflect the real health

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for income and wealth, excluding 'ownership' imputation", thus it is robust and the income variable has been used in numerous studies earlier. Please see section 3.11 of Rand HRS "F" codebook for more imputation information.

change. Our preliminary results are consistent with their findings, thus, we decide to use self-report change of health only.

Independent Variables

The main independent variable of interest is private health insurance status prior to entering Medicare, which is indicated by P H I . This variable is generated in the following manner. We consider people to be privately insured if they had any private health insurance policies[22]. If individuals were covered by private insurance in both waves prior to entering Medicare, they are considered to be consistently insured; if individuals were not covered by private insurance in either wave, they are considered to be consistently uninsured; if individuals were only covered by private insurance in one of the two waves prior to entering Medicare, they are considered to be intermittently insured.[23] Then we name this private insurance variable prior to entering Medicare as P H I which has four outcomes - consistently insured, consistently uninsured, and intermittently insured one or two waves prior to entering Medicare.

Beyond this insurance variable, we also generate variables in each wave after a respondent enters Medicare to denote their private and public health insurance coverage.

[22] Insured through their own employer-based insurance, their spouses' employer insurance, or, self-purchased supple-mental private insurance other than employer and public insurances. Coverage for special conditions such as mental health, dental insurance, or long-term care insurance were classified as uninsured because these policies do not enable access to routine health care services.

[23] They could be insured in two waves prior to entering Medicare and became uninsured one wave prior to entering Medicare; or they could be uninsured two waves prior to entering Medicare and insured one wave prior to entering Medicare.

Based on our selection criteria, near elderly were not covered by any public health insurance prior to entering Medicare. However, individuals could get access to additional health care through Medicaid after they entered Medicare. This group of respondents are not excluded from our analysis, to catch the effects, we control for Medicaid coverage.

Other independent variables include socio-demographic characteristics such as age, race, sex, marital status, education, household structure, and income[24]. Regional variables were also included in the regression, to account for differences in mandates and premium regulation, which vary from state to state, but are known to exhibit regional patterns. Our data include three cohorts, thus we control for cohort effects, in other words, we examine the influence of the timing when people entered Medicare. To study health care expenditures, health status variables are necessary explanatory variables which include self-report health status, number of diagnosed diseases[25], functional limitations (ADLs), mental health score (CESD), BMI[26], and the health behaviors such as smoking and alcohol drinking.

Since we use longitudinal data, we treat year 92 as the base year and adjust for the inflation on total medical expenditures and income. At the same time, due to the high

[24] Income is the total household income adjusted for poverty level and size of the household. We don't control for wealth information because in terms of health issues, wealth is more likely to be endogenous than income.

[25] Diagnosed conditions include high blood pressure, diabetes, cancer, lung disease, heart problems, stroke, psych problems, arthritis.

[26] According to actuarial and epidemiological standards, persons are considered 'underweight' if their BMI is below 18.5, 'normal weight' if their BMI is between 18.5 and 25, 'overweight' if their BMI is between 25 and 30, and 'obese' if BMI>30.

skewness and heavy tails of medical expenditures, we also generate indicators to denote the outliers of total medical expenditures.

2.5 Econometric Specification

The main variable of interest is the private health insurance status variable prior to entering Medicare. It has been established in earlier studies that private health insurance is endogenous. Our study does not have this concern because our objectives are to examine the changes in medical expenditures and health outcomes after people enter Medicare. In this case, private insurance status prior to entering Medicare has been determined long time before coming into Medicare and it can be considered exogenous. Hadley (2003) states that "studies that take advantage of exogenous changes in either health insurance or health status should be given greater weight than studies that simply compare insured and uninsured people."

We estimate the following equations:

$$\ln(E)_{i,t} = \alpha_1 HI + \psi_1 HIAM_{i,t} + \omega_1 H_{i,t-1} + \delta_1 X_{i,t} + \varepsilon_{i,t} \quad (1)$$

Equation [1] is the level analysis on medical expenditures where E is the total medical expenditures in dollars[27], H I is the indicator for private health insurance status prior to entering Medicare (consistently insured, consistently uninsured, and intermittently insured one or two waves prior to entering Medicare), *HIAM* is the private and public health insurance coverage after coming into Medicare, *HS* is the health status indicators and health behavior variables, X is the social-economic and other characteristics; *i* represents *i*th individual and *t* represents period *t*. Equation [1] is estimated in each wave staring 1 wave prior to entering Medicare (1WPEM) to 2 waves after coming into Medicare (2WAEM) to demonstrate the longitudinal effects of being uninsured on the total medical expenditures before and after entering Medicare.

$$\Delta \ln(E)_{i,t,t-1} = \beta_2 HI + \phi_2 HIAM_{i,t-1} + \psi_2 HIAM_{i,t} + \omega_2 H_{i,t-1} + \pi_2 H_{i,t} + \tau_2 X_{i,t-1} + \delta_2 X_{i,t} + \mu_{i,t} \quad (2)$$

$$\Delta SH_{i,t,t-1} = \gamma_3 HI + \phi_3 HIAM_{i,t-1} + \psi_3 HIAM_{i,t} + \omega_3 H_{i,t-1} + \tau_3 X_{i,t-1} + \delta_3 X_{i,t} + \upsilon_{i,t} \quad (3)$$

Equations [2] and [3] are the change in level analysis of medical expenditures and health outcomes, where the changes of total medical expenditures and health status are estimated after the elderly entered Medicare. $\Delta \ln(E)$ [28] and ΔSH are the changes of total medical expenditure and self-report change of health status between time *t* and *t-1*. *HS* represents the other health status indicators. *t* can be the wave entering Medicare

[27] We study the elderly and almost all of them utilize medical services and therefore they have medical expenditures. The proportion of individuals who spent nothing ($0)is very small, which happens to be 1% in the full sample. Thus, we don't have much zeroes in the log structure transformation and we do not use two-part model.

[28] Equation [2] estimates the growth rate of medical expenditures between two waves, details are shown in the Appendix A.

(EM), 1 wave after entering Medicare (1WAEM) and 2 waves after entering Medicare (2WAEM).

Health status variables *HS* in equation [1] are in lag structure, whereas all explanatory variables in equations [2] and [3] are in lag and current structures where *HIAM* , *HS*, and *X* are controlled in both period *t* and *t-1* to observe the differences between two periods. The lag structure is used to adjust the behavioral covariates which do not occur instantaneously. For instance, smoking and alcohol abuse require some passage of time before causing adverse health effects. Including the lagged dependent variable is consistent with the Grossman investment model, which states that current health depends on the initial level of health.

Since males and females behave differently, they exhibit gender differences in health care market, equations [1], [2], and [3] are estimated for the full sample and they are also estimated by gender separately.

2.6 Results

Medical expenditure and health outcome are functions of medical utilization, although medical utilization is not part of this study, in Table 2 we present the various medical utilizations before and after one enters Medicare based on their prior private health insurance status to further motivate our study. Utilizations are summarized in five group

of individuals - Full Sample, Insured Consistently (1) (consistently insured in both two waves prior to entering Medicare), Uninsured Consistently (2) (consistently uninsured in both waves prior to entering Medicare), Insured Intermittently (3) (insured in 2 waves before Medicare, but uninsured in one before Medicare), and Insured Intermittently (4) (Uninsured in two waves before Medicare, but insured in one wave before Medicare)[29]. Hospital nights, number of doctor visits, and nursing home nights indicate the frequency of usage during the last two years, while home care use, drug use, and outpatient service only indicate whether the individual used the services during last two years, which shows the percentage of usage among each group.

Generally, since our sample is aging over time we observe that people utilize more health care as they get older, this is true for all health care services. When we compare the insured and the uninsured, we observe different utilization patterns before and after they enter Medicare. Overall, the uninsured used less hospital care and doctor visit than the insured before Medicare, but once they entered Medicare, uninsured dramatically increased their hospital stays and doctor visits compared to the insured. However, we only observe this incredible increase immediately after people entered Medicare and it slows gradually. Furthermore, the uninsured gradually learn how to use outpatient services and we can see the outpatient service utilization increases over time. The uninsured are more likely to be in worse health condition, thus be observe that the uninsured use more nursing home care than the insured in all the waves. We do not observe the increase use of prescription drugs upon entering Medicare because

[29] Although we control for intermittent health insurance coverage in our multivariate analysis, we do not discuss them extensively

Medicare did not cover prescription drugs[30]. Overall the insured tend to have higher utilization rates of home care, drug use and outpatient services, suggesting the learning by doing theory, since the insured had access to insurance and they learned how to utilize these services effectively unlike the uninsured. We draw this conclusion from the fact that even though the uninsured have worse health, the aforementioned services have lower utilization, suggesting they might be taking time to learn on how to use Medicare to optimize their individual well being.

Table 3-1 shows us the total medical expenditures by each insured group over time, whereas Table 3-2 shows us the difference of total medical expenditures between waves[31]. Table 3-1 is consistent with Table 2 showing that total medical expenditures increase as people increase health care utilization when they get older. Before entering Medicare the uninsured had lower expenditures compared to the insured, but after entering Medicare, the expenditures rise considerably and can be seen in Table 3-2. For the insured medical expenditures increases by $1514 compared to $22 by the insured right after entering Medicare. Further one wave after entering Medicare the Medical expenditures for the uninsured double up, another word the uninsured are spending $3392 more compared to previous wave, where as for the insured the difference is only $1655. As one ages we expect higher medical expenditures, but on the other hand the expenditures of uninsured is quiet high and can be explained by higher utilization from

[30] Since the Medicare prescription drug Plan D has been enacted in 2006, we might see this pattern change in future years.

[31] We also include differences of 4 years, namely 4 years before (EM - 2WPEM) and 4 years after entering Medicare (2WAEM - EM).

Table 2.[32] After entering Medicare there is not much difference in expenditure between the insured and the uninsured Male, but for the uninsured female Medical expenditures is significantly higher ($4126) compared to $1157 of the insured which shows the gender difference.

Table 4-1 shows us the self-reported health status (*SRHS*) by each group in our example. *SRHS* was asked in form of the global question in the following manner: How would you rate your current health status, where 1 is being in excellent health and 5 being in poor health. We observe that overtime an individuals health worsens, and this is due to aging but for the uninsured on average have worse health compared to the insured. Additionally, the uninsured male reports far worse health (a rise from 2.80 to 3.01) after coming into Medicare but for uninsured female we do not observe that, namely SH RS rises from 2.97 to 3.02. Numerous studies have shown that overall (access to insurance does not play any role) females tend to utilize more preventive services compared to male, and in effect report worse health (2.97) before coming into Medicare compared to male (2.80). Another words female are more aware of their health status even before they come into Medicare, which might not be true for males, thus once they come into Medicare they find out about their new diagnosis and report worse health compared to females. Table 4-2 presents the self-report of health change since previous wave by each group. The global question was asked as: How do you compare your health to previous wave, where 1 is much better, 2 is somewhat better, 3 is same, 4 is somewhat worse, and 5 is much worse. Overall, people reported getting worse over time,

[32] Note that in Wave 7 or 2004, HRS did not ask the question on Total Medical Expenditures, thus our sample show a drop in observations.

and the uninsured report worse health change than the insured. However, we observe a drop in the self-report of health change immediately after entering Medicare among the uninsured, namely, 3.12 compared to 3.25 in the previous before coming into Medicare. This suggests that the health depreciation of the uninsured slows down. We observe the same trend in both male and female uninsured.

Table 5 summarizes the demographic and other variables which include gender, race, education, marital status, household structure, children status, working status, and income adjusted for poverty level. Besides these variables, other health insurance variables and health conditions are also included. The uninsured are more likely to be females and minority groups, and they are less educated. We also noticed that less uninsured individuals are married compared to the insured and they are more likely to live either alone or live in a big family. The percentage of people who worked for pay after entering Medicare for both insured and uninsured are very similar suggesting that one retires after getting access to Medicare. However, we find higher percentage of insured working compared to uninsured before coming into Medicare. It might be that the insured work simply to keep their health insurance. At the same time, the uninsured are much poorer than the insured based on their household income. After entering Medicare, the evidence suggests that the previously insured people consistently have access to private health insurance compared to the uninsured. On the other hand, the uninsured have an alternative health insurance coverage through Medicaid. Health indicators suggest that on average the uninsured have poorer health compared to the insured.

Another interesting finding is that the uninsured are more likely to be smokers and the insured drink more often than the uninsured.

Tables 2 to 5 only show the statistics of the respondents who were still alive 2 waves after entering Medicare. The tables indicate that the 10% of the near elderly in our sample were uninsured before entering Medicare compared to 13.6% estimated by EBRI (2007). Intermittently insured accounts for approximately 12% of the sample. Since we do not discuss the intermittent groups in this paper, further examination needs to be conducted in the future. According to our selection criteria, we still keep the respondents who died after they entered Medicare and generate a mortality indicator for them. Table 6[33] presents the mortality rates among different insured groups. As expected, insured elderly have the lowest mortality rates which suggest that they had better health. And it is not surprising to find the highest mortality rates are among the uninsured because their health had been neglected for a long time before entering Medicare.

Tables 7[34] to 10 present the estimation results. Table 7 shows the results of the level analysis on total medical expenditures in each wave since 1 wave prior to entering Medicare (1WPEM). The uninsured on average spend less than the insured. Right after they enter Medicare, the medical expenditures of the uninsured increase, however, they are still significantly lower than those of the individuals who are insured. Two years after coming into Medicare, the uninsured individuals gradually increase their medical

[33] We can also summarize mortality by gender.
[34] In level analysis, we also controlled for being widowed and divorced other than being single, and found that being widowed leads to higher expenditures before coming into Medicare, but after coming into Medicare, the effects disappear.

expenditures and reduce the gap between the insured. It might be because the uninsured are learning. But four years after coming into Medicare, we observe the that the expenditure gap between the insured and uninsured reappears again even though it is not significant. It might be because the uninsured have utilized medical services in the first few years after they entered Medicare and get improvement in health, then they gradually slow down the usage. We also observe significantly higher medical expenditure among individuals who are covered by private insurance after coming into Medicare across all waves. But being covered by Medicaid after coming into Medicare does not have an instantaneous effect on medical expenditure unlike private health insurance as stated earlier. Medicaid affects expenditures 4 years after the individuals enter Medicare. This may be caused by the fact that the individuals are aging and exhaust most of their financial resources on medical care years after retirement and become eligible for the Medicaid coverage later. As expected, individuals with worse health conditions are using more health services, leading to higher expenditures across all waves[35]. Mortality indicates if the individuals died after entering Medicare, we observe a significant increase in expenditures among those individuals who died in the future wave. Another interesting finding is smoking behavior. Four years after entering into Medicare, cigarette smokers show a less usage of medical services which is contradicting out expectations[36]. Aging has no significant effect on medical expenditures, as our sample is a homogenous group on the elderly who are around 65. After controlling for insurance status, we do not see significant race disparities on medical expenditures, while we do see a difference on educational attainment, which

[35] "Excellent" health, "no" diagnosed condition, and "normal weight" are treated as reference groups.
[36] This might be due to the sample selection because those who had worse health would stop smoking and those who had better health would not stop smoking as they are getting older.

suggests that less-educated elderly use less medical care and thus have lower medical expenditures. We also find a significant cohort difference. Compared to younger cohort, the older cohorts are less likely to use health services and also will spend less on medical expenditures. Across all the waves, we observe a gender difference, namely males are spending less than females regardless their insurance status.

In Table 8[37], we present our change analysis on the growth rate of medical expenditures between two waves[38]. The findings from Table 7 and Table 8 are consistent. After entering Medicare, the uninsured medical expenditures dramatically increase right after they entered Medicare, by overall 50% (equation 1), but for uninsured males the expenditures grows five times faster than the females. Combining findings from Table 7, it suggests that uninsured females consistently utilize medical care even prior to entering Medicare. However, males will utilize medical services only if they have health insurance, which indicates the adverse selection among males. Overtime, however, the uninsured slow down their spending compared to the insured counterparts. Thus, we observe a negative growth rate 4 years after coming into Medicare. On average the uninsured medical expenditure grows at a slower pace compared to insured. Other than Medicaid, in the long run, 4 years after coming into Medicare [equation 7, 8, 9] we do not observe any insurance effect on medical expenditures. We find overall those individuals that are on Medicaid tend to have a 70% growth rate in medical expenditures, while the growth mostly comes from females.

[37] We Controlled for becoming divorced and widowed in both level analysis and difference analysis, they are not reliable as they were only a dozen observations on males, results are not consistent or reliable. Because our insurance results are robust, we decide not to control for them and stick to marital status.
[38] Please refer to the Appendix for continuous growth rate derivations

Health status is consistent with our earlier findings. Those individuals had worse health and more medical conditions in the last wave tend to have higher medical expenditures in the last period, thus in the future their expenditure might be lower, thus the growth rate is negative. But those with worse health and more medical conditions tend to have higher growth rate in medical expenditures in the current wave, and thus the growth rate is positive. Initially after coming into Medicare, individuals with less than high school education had lower growth in medical expenditures, but 1WAEM we observe that their medical expenditure rise by 44% but in the long run, that is 2WAEM we see a drop in medical expenditures by 68%. This may be due to the fact that they slowly learn how to use Medicare services and they feel that they have better health outcomes and their medical expenditures drop in the future. But when we look at the gender effects the males tend to exhibit this behavior, which is inconsistent with females.

Table 9[39] shows the self-report of health change over time. In table 10 we present the marginal effect of our main independent variable. Our objective is to see how health status changes when one has access to Medicare. Initially when the uninsured enter Medicare they tend to feel better about their health, this is indicated by the negative coefficients in equation [1, 2, 3][40], but over time we observe that health deteriorates gradually for the males. But for the uninsured female the health may actually improve,

[39] We also controlled lagged health status with number of diagnosed conditions and ADLs separately and found no significant changes in results. Furthermore, we controlled for lagged total medical expenditures and found insignificant results. When we controlled for current expenditures, it is super endogenous. So we decide to leave it out, but right now we report the results with lagged expenditures.

[40] The dependent variable is the self-report of health change since last wave. HRS asks a global question as "How do you feel your health compared to last wave?" The answers include much better (1) somewhat better (2), same (3), somewhat worse (4), and much worse (5). In this manner, we run an ordered probit model to examine the health change between two waves. Thus, positive coefficients indicate worse health and negative coefficients indicate better health. The magnitude is given by marginal effects presented in Table 10.

which is suggested by a coefficient of 0.16 in equation [5] compared to 0.10 in equation 8. Having access to private health insurance might lead to an improvement in health, where as those that are enrolled in Medicaid have poorer health. Individuals with poorer health in the previous period tend to have worse health in the future, which is consistent with the results earlier presented in Table 7 and Table 8. Consistent with the literature smoking and drinking does have adverse health effect but for medical expenditure we are unable to explain the coefficient. Earlier we stated that individuals with less than high school education tend to have higher medical expenditure 1WAEM, but 2WAEM we observe that they are reporting better health, as suggested by the negative coefficient. Respondents with children tend to exhibit better health, this is especially true for females 2WAEM than males. As stated earlier, mortality indicates that those that died between waves have significantly worse health, this is consistent with our earlier findings that they also have higher medical expenditures.

Table 10 shows the results of marginal effects of being uninsured on health change in 2 waves after entering Medicare (2WAEM). Overall the uninsured are 4.85% more likely to have worse health than their insured counterparts. The effects are highly significant and suggest that uninsured males are 8.5% more likely to have worse health than their male counterparts who are insured. Uninsured individuals reporting "much better", "better", and "same" tends to exhibit better health, as suggested by the negative coefficient. From the coefficients of al categories, males are more likely to get worse health than females[41].

[41] All the regressions have been checked for sample selection of mortality. Since the mortality rate is low, we didn't find any significant problem on sample selection. The tables are available upon request.

2.7 Conclusion

This paper examines Medicare policy and general health market access policy. Our current public involvement in the health market is to provide universal coverage only to those over the age of 65. Using longitudinal data from HRS we focus on adults who are approaching entry into Medicare. We explore the total medical spending and corresponding health status of previously uninsured individuals before and after they enter Medicare compared to their insured counterparts. We examine whether the lack of private health insurance before age 65 leads to dramatically more medical expenditures and improvement in health status after entering into Medicare. Prior studies have focused on utilization after one enters Medicare and found higher utilization rates after one enters Medicare for the uninsured, this is suggestive of higher costs, however, the long run effects of Medicare have not been measured, which we do in our study. Unlike prior studies, we follow individual for a period of eight years, that is four years before entering Medicare and four years afterward. We identify their private health insurance status prior to entering Medicare, and we observe their expenditures and health status biannually and examine the difference of expenditures and health status between every two years. The major finding of this study is that the lack of private health insurance coverage before coming into Medicare dramatically increases total medical expenditures of previously uninsured elderly, compared to previously insured people right after they enter Medicare. However, the uninsured are still spending less than the insured. During the same period, the previously uninsured elderly temporarily improves

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Additionally, we take out all Medicaid beneficiaries from the sample to examine if the results are robust. And we find that results are consistent.

their health status compared with previously insured individuals. The evidence suggests that the uninsured gain through health investments. Effects are more significant for males than females. In the long-run, two years after entering Medicare, the uninsured increase their medical utilization and reduce the expenditure gap between the insured. However, four years after they entered Medicare, the insured consistently utilize more medical services due to aging whereas the uninsured do not utilize as much as insured at the same time, and which in turn shows up to reflect their worse health gap between previously insured and uninsured even after we control for mortality.

According to the findings in this study, although the previously uninsured increase their medical services and medical spending, their health doesn't improve as expected because of their poorer health stock before coming into Medicare. Which as a policy implication, expanding health insurance coverage to the uninsured at younger ages, especially males should result in substantial savings after they enter Medicare and better health in the long run. This has important Medicare policy implications when one considers the solvency issues and an aging baby-boomer population.

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Table 1: Variable Definition

Dependent Variables

Log(TOTMD)	Log of Total Medical expenditures in Wave N; N includes waves 2WPEM, 1WPEM, EM, 1WAEM, and 2WAEM
Diff Log(TOTMD) (1, 2, 3)	Difference of Log of Total Medical Expenditures between two adjacent waves N and N+1 after entering Medicare
Diff Health (1, 2, 3)	Self-report of Health Change between two adjacent waves N and N+1
Notes:	1: difference between wave EM and wave 1WPEM 2: difference between wave 1WAEM and wave EM 3: difference between wave 2WAEM and wave 1WAEM

Independent Variables

PHI (1, 2, 3, 4)	=1: consistently insured in both waves prior Medicare =2: consistently uninsured in both waves prior Medicare =3: insured in 2WPEM and uninsured in 1WPEM prior Medicare =4: uninsured in 2WPEM and insured in 1WPEM prior Medicare
HI	Privately insured in EM, 1WAEM, or 2WAEM after Medicare
Medicaid	Covered by Medicaid in EM, 1WAEM, or 2WAEM after Medicare
Health	Self-report of health in each wave =1 excellent; =2 very good; =3 good; =4 fair; =5 poor
Conditions	# Diagnosed diseases in each wave
ADL	# Functional Limitations in each wave
CESD	Mental health scores in each wave
BMI	=1: underweight; =2: normal weight; =3: overweight; =4: obese
Smoking	Smoking in each wave
Drinking	Alcohol drinking in each wave
Mortality	=1: died in wave 1WAEM; =2: died in wave 2WAEM
Female	=1 if female, otherwise, 0
Race	=1 if white; =2 if black; =3 otherwise
Hispanics	=1 if Hispanics; otherwise, 0
Education	=1 below high school, =2 high school graduate, =3 college, =4 above college
Married	=1 if married or with spouse
Age	Age at each wave
Household Size	=1: living alone =2: living with spouse =3: living with more than 2 persons
Children	=1: Having living children; 0, otherwise
Work	=1 if working for pay; 0 otherwise
Income	Total household income adjusted for poverty and household size
Region	=1 Northeast; =2 Midwest; =3 South; =4 West
Cohort	=1 enter Medicare in 1996; =2 enter Medicare in 1998; =3 enter Medicare in 2000
Outlier TOTMD	=1 if total medical expenditures are outliers, 0 otherwise

Table 2: Health Care Utilization by Insurance Status over Waves

	Full Sample			Insured Consistently (1)			Uninsured Consistenlty (2)			Insured Intermittently (3)			Insured Intermittently (4)		
	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.
Hospital Nights 2WPEM	1923	0.96	5.58	1525	0.99	6.04	181	0.64	2.60	127	1.31	4.38	90	0.46	2.16
Hospital Nights 1WPEM	1924	1.07	4.14	1525	1.11	4.34	181	0.94	3.75	127	1.10	3.47	91	0.46	1.57
Hospital Nights EM	1921	1.22	4.80	1522	1.21	4.47	181	1.41	7.30	127	1.48	5.53	91	0.70	2.01
Hospital Nights 1WAEM	1922	1.47	4.93	1525	1.54	5.12	180	1.51	4.88	127	1.10	3.87	90	0.76	2.27
Hospital Nights 2WAEM	1918	1.85	6.04	1519	1.90	6.16	181	1.61	4.66	127	2.51	7.94	91	0.60	2.04
# Doctor Visits 2WPEM	1911	5.80	7.52	1517	5.95	7.40	181	5.40	9.31	125	5.86	7.77	88	3.81	4.40
# Doctor Visits 1WPEM	1911	6.56	8.84	1517	6.83	9.15	180	5.41	8.37	123	6.01	7.52	91	5.13	5.05
# Doctor Visits EM	1908	7.64	12.28	1514	7.63	9.90	178	8.34	22.00	125	8.25	19.79	91	5.47	6.79
# Doctor Visits 1WAEM	1905	8.80	16.54	1511	8.79	17.12	178	10.01	14.08	126	8.18	16.52	90	7.50	9.93
# Doctor Visits 2WAEM	1876	9.31	18.35	1492	9.31	19.33	171	9.58	13.86	124	10.54	17.14	89	7.03	7.49
Nursing Home Nights 2WPEM	1923	0.04	1.60	1524	0.05	1.79	181	0.00	0.00	127	0.00	0.00	91	0.00	0.00
Nursing Home Nights 1WPEM	1924	0.17	5.26	1525	0.07	2.33	181	1.17	15.76	127	0.06	0.62	91	0.00	0.00
Nursing Home Nights EM	1924	0.46	14.89	1525	0.15	3.30	181	3.65	47.59	127	0.00	0.00	91	0.00	0.00
Nursing Home Nights 1WAEM	1924	2.15	36.36	1525	1.65	30.76	181	4.55	61.02	127	1.19	13.40	91	7.02	66.99
Nursing Home Nights 2WAEM	1922	3.48	47.08	1523	3.34	44.81	181	4.34	56.64	127	6.46	70.22	91	0.00	0.00
Home Care Use 2WPEM	1923	0.01	0.10	1524	0.01	0.11	181	0.01	0.10	127	0.02	0.12	91	0.00	0.00
Home Care Use 1WPEM	1923	0.01	0.12	1525	0.01	0.11	180	0.02	0.15	127	0.02	0.15	91	0.00	0.00
Home Care Use EM	1922	0.03	0.17	1524	0.03	0.16	180	0.04	0.21	127	0.03	0.18	91	0.02	0.15
Home Care Use 1WAEM	1915	0.04	0.19	1519	0.03	0.18	180	0.08	0.28	126	0.02	0.13	90	0.03	0.18
Home Care Use 2WAEM	1913	0.05	0.22	1516	0.05	0.22	180	0.04	0.21	126	0.06	0.23	91	0.03	0.18
Drug Use 2WPEM	1511	0.61	0.49	1176	0.64	0.48	151	0.54	0.50	115	0.52	0.50	69	0.51	0.50
Drug Use 1WPEM	1924	0.65	0.48	1525	0.68	0.47	181	0.56	0.50	127	0.53	0.50	91	0.55	0.50
Drug Use EM	1924	0.71	0.45	1525	0.73	0.44	181	0.66	0.48	127	0.60	0.49	91	0.64	0.48
Drug Use 1WAEM	1924	0.77	0.42	1525	0.79	0.41	181	0.70	0.46	127	0.68	0.47	91	0.69	0.46
Drug Use 2WAEM	1923	0.81	0.39	1524	0.82	0.38	181	0.77	0.42	127	0.75	0.44	91	0.75	0.44
Outpatient Service 2WPEM	816	0.17	0.38	625	0.18	0.39	98	0.08	0.28	56	0.14	0.35	37	0.19	0.40
Outpatient Service 1WPEM	1511	0.16	0.36	1175	0.18	0.38	152	0.06	0.24	115	0.09	0.28	69	0.13	0.34
Outpatient Service EM	1924	0.17	0.38	1525	0.18	0.38	181	0.13	0.33	127	0.18	0.39	91	0.14	0.35
Outpatient Service 1WAEM	1922	0.18	0.38	1523	0.18	0.39	181	0.18	0.38	127	0.17	0.38	91	0.19	0.39
Outpatient Service 2WAEM	1918	0.24	0.43	1519	0.25	0.43	181	0.18	0.39	127	0.26	0.44	91	0.22	0.42

Table 3-1: Total Medical Expenditures by Insurance Status over Waves

		Full Sample			Insured Consistently (1)			Uninsured Consistenlty (2)			Insured Intermittently (3)			Insured Intermittently (4)		
		N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.
Full	2WPEM	1924	5930	14402	1525	6306	15554	181	3825	7538	127	4428	7381	91	5917	11459
	1WPEM	1924	6085	13317	1525	6528	14133	181	4191	10186	127	3986	6982	91	5361	10665
	EM	1924	6338	13928	1525	6560	14021	181	5705	14604	127	5709	14614	91	4757	9242
	1WAEM	1924	8063	16688	1525	8215	17036	181	9098	18078	127	5718	11732	91	6712	13317
	2WAEM	1130	9199	16703	915	9555	17326	86	7474	9705	75	9135	19105	54	5995	9411
Male	2WPEM	895	6171	14276	728	6709	15301	70	2261	4175	57	3966	7504	40	6361	12467
	1WPEM	895	6756	14933	728	7409	16153	70	3785	7213	57	3252	6507	40	5064	7102
	EM	895	6676	15167	728	6891	14795	70	6639	19849	57	5689	17537	40	4229	6769
	1WAEM	895	8718	18458	728	9092	19058	70	8868	19744	57	6363	13339	40	5014	8315
	2WAEM	564	9874	18065	466	9961	18109	34	6774	8770	37	13577	26122	27	7199	10926
Female	2WPEM	1029	5720	14516	797	5937	15781	111	4811	8917	70	4804	7312	51	5569	10717
	1WPEM	1029	5501	11707	797	5723	11948	111	4447	11703	70	4583	7339	51	5594	12856
	EM	1029	6045	12753	797	6258	13278	111	5117	10048	70	5726	11850	51	5171	10845
	1WAEM	1029	7492	14966	797	7415	14920	111	9243	17036	70	5192	10311	51	8044	16161
	2WAEM	566	8526	15213	449	9134	16483	52	7931	10329	38	4809	5209	27	4791	7626

Table 3-2: Difference of Total Medical Expenditure by Insurance Status over Waves

		Full Sample			Insured Consistently (1)			Uninsured Consistenlty (2)			Insured Intermittently (3)			Insured Intermittently (4)		
		N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.
Full	1WPEM-2WPEM	1924	155	17845	1525	222	19030	181	366	12060	127	-442	8917	91	-556	16379
	EM-1WPEM	1924	253	18151	1525	32	18865	181	1514	15884	127	1724	15118	91	-604	13461
	1WAEM-EM	1924	1724	19066	1525	1655	19492	181	3392	19973	127	9	13780	91	1955	16115
	2WAEM-1WAEM	1130	2818	18559	915	3050	18911	86	-139	16806	75	5007	19880	54	559	11731
	EM-2WPEM	1924	408	19156	1525	255	19937	181	1880	16614	127	1282	15073	91	-1160	15210
	2WAEM-EM	1130	3080	19500	915	3026	20093	86	3488	11529	75	4759	22563	54	1026	14325
Male	1WPEM-2WPEM	895	585	18770	728	700	20214	70	1523	7846	57	-714	8406	40	-1297	15539
	EM-1WPEM	895	-80	20235	728	-518	20778	70	2855	21208	57	2437	16760	40	-835	10467
	1WAEM-EM	895	2043	19602	728	2201	20414	70	2229	21080	57	675	10219	40	785	9920
	2WAEM-1WAEM	564	2835	20355	466	2761	20118	34	-969	18441	37	8418	27543	27	1257	13606
	EM-2WPEM	895	505	20158	728	182	20502	70	4378	20249	57	1723	18948	40	-2132	14141
	2WAEM-EM	564	3459	21366	466	2971	21740	34	3195	10399	37	10477	27324	27	2598	13642
Female	1WPEM-2WPEM	1029	-219	17000	797	-214	17883	111	-364	14070	70	-221	9366	51	25	17139
	EM-1WPEM	1029	544	16127	797	535	16926	111	669	11351	70	1143	13733	51	-423	15512
	1WAEM-EM	1029	1447	18592	797	1157	18608	111	4126	19304	70	-534	16166	51	2873	19716
	2WAEM-1WAEM	566	2801	16594	449	3350	17588	52	403	15809	38	1686	5420	27	-139	9715
	EM-2WPEM	1029	325	18249	797	321	19419	111	306	13711	70	922	11100	51	-398	16096
	2WAEM-EM	566	2703	17454	449	3082	18251	52	3679	12307	38	-808	15073	27	-546	15069

Table 4-1: Self-Reported Health by Insurance Status over Waves

		Full Sample			Insured Consistently (1)			Uninsured Consistenlty (2)			Insured Intermittently (3)			Insured Intermittently (4)		
		N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.
Full	2WPEM	1923	2.41	1.02	1524	2.35	0.97	181	2.91	1.19	127	2.48	1.08	91	2.31	1.11
	1WPEM	1924	2.52	1.02	1525	2.48	0.98	181	2.91	1.22	127	2.64	1.07	91	2.37	1.04
	EM	1924	2.57	1.02	1525	2.51	1.00	181	3.02	1.06	127	2.72	1.10	91	2.52	1.06
	1WAEM	1924	2.64	1.01	1525	2.60	0.98	181	3.09	1.07	127	2.65	1.12	91	2.51	1.00
	2WAEM	1924	2.72	1.06	1525	2.66	1.03	181	3.27	1.12	127	2.73	1.09	91	2.58	1.03
Male	2WPEM	894	2.39	1.02	727	2.35	0.98	70	2.81	1.17	57	2.51	1.09	40	2.13	1.11
	1WPEM	895	2.51	1.00	728	2.47	0.97	70	2.80	1.22	57	2.65	1.06	40	2.38	1.03
	EM	895	2.56	1.02	728	2.50	0.99	70	3.01	1.08	57	2.75	1.12	40	2.60	1.03
	1WAEM	895	2.63	1.01	728	2.61	0.99	70	2.93	1.09	57	2.67	1.24	40	2.40	0.96
	2WAEM	895	2.74	1.05	728	2.71	1.03	70	3.21	0.98	57	2.67	1.14	40	2.63	1.10
Female	2WPEM	1029	2.43	1.02	797	2.36	0.96	111	2.97	1.21	70	2.46	1.09	51	2.45	1.10
	1WPEM	1029	2.54	1.05	797	2.48	1.00	111	2.97	1.22	70	2.63	1.09	51	2.37	1.06
	EM	1029	2.58	1.03	797	2.52	1.00	111	3.02	1.05	70	2.69	1.10	51	2.45	1.08
	1WAEM	1029	2.66	1.01	797	2.59	0.98	111	3.20	1.05	70	2.63	1.01	51	2.59	1.04
	2WAEM	1029	2.70	1.07	797	2.62	1.03	111	3.30	1.21	70	2.79	1.06	51	2.55	0.99

Table 4-2: Self-Report of Health Change by Insurance Status over Waves

		Full Sample			Insured Consistently (1)			Uninsured Consistenlty (2)			Insured Intermittently (3)			Insured Intermittently (4)		
		N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.
Full	1WPEM-2WPEM	1923	3.04	0.67	1524	3.02	0.66	181	3.25	0.73	127	2.94	0.69	91	3.11	0.59
	EM-1WPEM	1924	3.03	0.71	1525	3.03	0.69	181	3.12	0.85	127	3.13	0.71	91	2.88	0.81
	1AW-EM	1923	3.09	0.71	1524	3.08	0.68	181	3.25	0.84	127	3.06	0.76	91	3.08	0.76
	2WAEM-1AW	1924	3.14	0.68	1525	3.12	0.68	181	3.29	0.72	127	3.19	0.63	91	3.04	0.68
Male	1WPEM-2WPEM	895	3.02	0.67	728	2.99	0.67	70	3.21	0.68	57	3.00	0.65	40	3.15	0.53
	EM-1WPEM	895	3.02	0.70	728	3.00	0.69	70	3.17	0.66	57	3.19	0.79	40	2.90	0.81
	1AW-EM	895	3.09	0.68	728	3.08	0.67	70	3.24	0.71	57	3.11	0.77	40	2.95	0.75
	2WAEM-1AW	895	3.10	0.70	728	3.09	0.70	70	3.27	0.68	57	3.07	0.59	40	3.05	0.78
Female	1WPEM-2WPEM	1028	3.06	0.67	796	3.04	0.64	111	3.27	0.76	70	2.90	0.73	51	3.08	0.63
	EM-1WPEM	1029	3.04	0.73	797	3.05	0.69	111	3.09	0.96	70	3.09	0.63	51	2.86	0.83
	1AW-EM	1028	3.09	0.73	796	3.07	0.70	111	3.25	0.91	70	3.01	0.75	51	3.18	0.77
	2WAEM-1AW	1029	3.18	0.66	797	3.16	0.65	111	3.30	0.75	70	3.29	0.64	51	3.04	0.60

Table 5: Other Variables by Insurance Status over Waves

	Full Sample			Insured Consistently (1)			Uninsured Consistenlty (2)			Insured Intermittently (3)			Insured Intermittently (4)		
	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.
Female	1924	0.53		1525	0.52		181	0.61		127	0.55		91	0.56	
White	1921	0.87		1523	0.88		181	0.77		127	0.83		90	0.83	
Black	1921	0.12		1523	0.10		181	0.19		127	0.15		90	0.14	
Other	1921	0.02		1523	0.01		181	0.04		127	0.02		90	0.02	
Hispanics	1921	0.06		1523	0.03		181	0.22		127	0.12		90	0.11	
Yrs. Of Edu.	1921	12.31	3.05	1523	12.68	2.72	181	9.76	3.89	127	11.78	3.60	90	11.99	3.14
<High School	1921	0.24		1523	0.19		181	0.52		127	0.33		90	0.28	
High School	1921	0.39		1523	0.41		181	0.29		127	0.31		90	0.39	
College	1921	0.18		1523	0.20		181	0.13		127	0.15		90	0.13	
>College	1921	0.19		1523	0.20		181	0.06		127	0.21		90	0.20	
Married 2WPEM	1922	0.81		1524	0.83		181	0.70		127	0.73		90	0.74	
Married 1WPEM	1921	0.79		1524	0.81		180	0.67		127	0.73		90	0.71	
Married EM	1921	0.76		1523	0.79		180	0.63		127	0.68		91	0.69	
Married 1WAEM	1923	0.73		1525	0.76		180	0.61		127	0.65		91	0.64	
Married 2WAEM	1922	0.72		1523	0.75		181	0.58		127	0.63		91	0.63	
Living Alone 2WPEM	1924	0.12		1525	0.11		181	0.17		127	0.14		91	0.16	
Living Alone 1WPEM	1924	0.14		1525	0.12		181	0.21		127	0.18		91	0.16	
Living Alone EM	1924	0.16		1525	0.14		181	0.24		127	0.23		91	0.22	
Living Alone 1WAEM	1924	0.18		1525	0.17		181	0.24		127	0.26		91	0.27	
Living Alone 2WAEM	1924	0.20		1525	0.18		181	0.26		127	0.27		91	0.27	
HH Size 2 2WPEM	1924	0.62		1525	0.64		181	0.49		127	0.58		91	0.54	
HH Size 2 1WPEM	1924	0.64		1525	0.66		181	0.48		127	0.59		91	0.54	
HH Size 2 EM	1924	0.64		1525	0.67		181	0.50		127	0.51		91	0.53	
HH Size 2 1WAEM	1924	0.63		1525	0.66		181	0.44		127	0.57		91	0.54	
HH Size 2 2WAEM	1924	0.62		1525	0.65		181	0.44		127	0.57		91	0.55	
HH Size >2 2WPEM	1924	0.27		1525	0.25		181	0.34		127	0.28		91	0.30	
HH Size >2 1WPEM	1924	0.23		1525	0.22		181	0.31		127	0.23		91	0.30	
HH Size >2 EM	1924	0.20		1525	0.19		181	0.27		127	0.26		91	0.25	
HH Size >2 1WAEM	1924	0.19		1525	0.17		181	0.32		127	0.17		91	0.19	
HH Size >2 2WAEM	1924	0.18		1525	0.16		181	0.30		127	0.16		91	0.18	
Children Alive 2WPEM	1915	0.94		1521	0.94		181	0.92		124	0.94		89	0.96	
Children Alive 1WPEM	1915	0.94		1520	0.94		180	0.93		126	0.94		89	0.99	
Children Alive EM	1874	0.97		1488	0.97		174	0.97		124	0.95		88	0.99	
Children Alive 1WAEM	1840	0.98		1463	0.98		170	0.98		119	0.99		88	0.99	
Children Alive 2WAEM	1824	0.99		1448	0.99		168	0.99		119	0.99		89	0.99	
Work for Pay 2WPEM	1924	0.60		1525	0.61		181	0.44		127	0.67		91	0.65	
Work for Pay 1WPEM	1924	0.47		1525	0.47		181	0.41		127	0.51		91	0.54	
Work for Pay EM	1923	0.35		1525	0.34		181	0.35		126	0.36		91	0.43	
Work for Pay 1WAEM	1922	0.31		1523	0.31		181	0.31		127	0.30		91	0.35	
Work for Pay 2WAEM	1923	0.27		1525	0.27		180	0.29		127	0.31		91	0.27	
Poverty Level 2WPEM	1923	5.06	9.85	1524	5.43	10.50	181	2.80	5.60	127	3.92	4.34	91	5.03	10.13
Poverty Level 1WPEM	1924	4.38	5.52	1525	4.72	5.70	181	2.42	4.21	127	3.16	2.68	91	4.29	6.54
Poverty Level EM	1924	3.96	5.22	1525	4.22	4.77	181	2.36	3.86	127	2.79	3.33	91	4.39	11.97
Poverty Level 1WAEM	1924	3.53	5.04	1525	3.75	5.12	181	2.24	4.86	127	3.16	5.14	91	2.92	2.97
Poverty Level 2WAEM	1924	3.17	4.36	1525	3.39	4.62	181	1.95	3.36	127	2.41	2.80	91	2.80	2.50

Table 5: Other Variables by Insurance Status over Waves (Cont.)															
	Full Sample			Insured Consistently (1)			Uninsured Consistenlty (2)			Insured Intermittently (3)			Insured Intermittently (4)		
	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.
PHI EM	1924	0.67		1525	0.76		181	0.22		127	0.37		91	0.59	
PHI 1WAEM	1924	0.66		1525	0.73		181	0.24		127	0.45		91	0.55	
PHI 2WAEM	1924	0.67		1525	0.73		181	0.29		127	0.52		91	0.58	
Medicaid EM	1923	0.03		1524	0.02		181	0.10		127	0.06		91	0.03	
Medicaid 1WAEM	1923	0.04		1524	0.02		181	0.18		127	0.08		91	0.05	
Medicaid 2WAEM	1917	0.05		1521	0.03		179	0.21		127	0.10		90	0.08	
# Conditions 2WPEM	1924	1.16	1.06	1525	1.18	1.06	181	1.24	1.13	127	1.10	1.06	91	0.90	0.98
# Conditions 1WPEM	1924	1.34	1.14	1525	1.36	1.13	181	1.41	1.25	127	1.24	1.16	91	1.03	0.95
# Conditions EM	1924	1.53	1.20	1525	1.55	1.18	181	1.61	1.32	127	1.46	1.28	91	1.22	1.05
# Conditions 1WAEM	1924	1.76	1.26	1525	1.76	1.24	181	1.86	1.43	127	1.75	1.30	91	1.49	1.11
# Conditions 2WAEM	1923	2.00	1.31	1524	2.00	1.29	181	2.14	1.50	127	1.99	1.35	91	1.74	1.15
ADL 2WPEM	1924	0.05	0.30	1525	0.04	0.28	181	0.12	0.45	127	0.06	0.27	91	0.08	0.27
ADL 1WPEM	1924	0.11	0.49	1525	0.10	0.45	181	0.22	0.69	127	0.18	0.65	91	0.08	0.31
ADL EM	1924	0.12	0.49	1525	0.10	0.42	181	0.25	0.80	127	0.20	0.73	91	0.09	0.49
ADL 1WAEM	1924	0.14	0.52	1525	0.12	0.48	181	0.33	0.85	127	0.17	0.55	91	0.08	0.31
ADL 2WAEM	1924	0.16	0.62	1525	0.15	0.61	181	0.30	0.81	127	0.20	0.56	91	0.08	0.34
CESD 2WPEM	1864	0.85	1.48	1474	0.73	1.34	175	1.53	1.91	125	1.03	1.70	90	1.20	1.93
CESD 1WPEM	1834	1.08	1.65	1460	0.97	1.54	166	1.67	1.86	122	1.52	2.10	86	1.23	1.96
CESD EM	1825	1.20	1.65	1451	1.08	1.54	167	1.89	2.00	121	1.53	1.90	86	1.42	1.88
CESD 1WAEM	1813	1.23	1.71	1441	1.15	1.64	164	1.73	1.99	120	1.31	1.95	88	1.39	1.79
CESD 2WAEM	1802	1.24	1.76	1433	1.15	1.67	165	1.98	2.09	119	1.42	1.91	85	1.25	1.88
Smoking 2WPEM	1894	0.18		1498	0.16		179	0.28		126	0.24		91	0.20	
Smoking 1WPEM	1898	0.16		1504	0.14		178	0.26		125	0.22		91	0.18	
Smoking EM	1915	0.15		1517	0.13		181	0.23		127	0.21		90	0.17	
Smoking 1WAEM	1924	0.13		1525	0.11		181	0.20		127	0.20		91	0.15	
Smoking 2WAEM	1587	0.15		1265	0.12		144	0.25		102	0.25		76	0.18	
Drinking 2WPEM	1923	0.59		1524	0.62		181	0.41		127	0.50		91	0.56	
Drinking 1WPEM	1924	0.55		1525	0.58		181	0.39		127	0.47		91	0.54	
Drinking EM	1924	0.52		1525	0.55		181	0.36		127	0.45		91	0.51	
Drinking 1WAEM	1924	0.52		1525	0.54		181	0.33		127	0.47		91	0.47	
Drinking 2WAEM	1924	0.49		1525	0.52		181	0.30		127	0.43		91	0.43	

Table 6: Mortality Rates by Insurance Status after entering Medicare									
	2 Yrs after Medicare			2-4 Yrs after Medicare			4 Yrs after Medicare		
	Alive	Dead	Mortality	Alive	Dead	Mortality	Alive	Dead	Mortality
Insured	1,602	59	3.55	1,538	64	4.00	1,538	123	7.41
Uninsured	204	11	5.12	189	15	7.35	189	26	12.09
Insured 2WPEM	140	9	6.04	135	5	3.57	135	14	9.40
Insured 1WPEM	99	8	7.48	95	4	4.04	95	12	11.21

Table 7-1: OLS Estimates of Log of Total Medical Expenditures by Waves						
	1WPEM			EM		
	Full	Female	Male	Full	Female	Male
Insurance Status Prior to Entering MC						
Uninsured	-1.31 ***	-0.79 ***	-2.11 ***	-0.70 ***	-0.48 **	-1.14 ***
	(0.16)	(0.20) *	(0.28)	(0.17)	(0.20)	(0.31)
Insured 2WPEM	-0.58 ***	-0.40	-0.85 ***	-0.26	0.08	-0.65 **
	(0.18)	(0.23)	(0.29)	(0.18)	(0.22)	(0.31)
Insured 1WPEM	-0.40 *	-0.29	-0.61 *	-0.27	0.06	-0.73 **
	(0.21)	(0.26)	(0.35)	(0.21)	(0.24)	(0.37)
Insurance Status After Entering MC						
Current Privately Insured	-	-	-	0.31 ***	0.18	0.47 ***
				(0.11)	(0.13)	(0.18)
Current Medicaid Insured	-	-	-	0.30	0.47	-0.11
				(0.27)	(0.32)	(0.48)
Health Status and Behaviors						
Very Good Health	0.24 *	0.07	0.39 **	0.08	0.27	-0.17
	(0.13)	(0.17)	(0.21)	(0.14)	(0.17)	(0.24)
Good Health	0.59 ***	0.31 *	0.90 ***	0.44 ***	0.54 ***	0.37
	(0.14)	(0.19)	(0.22)	(0.15)	(0.18)	(0.25)
Fair Health	0.91 ***	0.63 **	1.17 ***	0.80 ***	1.01 ***	0.53 *
	(0.19)	(0.25)	(0.30)	(0.19)	(0.22)	(0.32)
Bad Health	1.45 ***	0.70 *	2.14 ***	0.84 ***	1.40 ***	0.27
	(0.31)	(0.40)	(0.49)	(0.30)	(0.36)	(0.52)
1 Condition	0.51 ***	0.53 ***	0.45 **	0.48 ***	0.37 **	0.59 ***
	(0.12)	(0.15)	(0.18)	(0.12)	(0.15)	(0.20)
2 Conditions	0.85 ***	0.81 ***	0.84 ***	0.67 ***	0.34 **	1.00 ***
	(0.14)	(0.18)	(0.21)	(0.14)	(0.17)	(0.22)
3 Conditions	0.98 ***	1.24 ***	0.60 *	0.85 ***	0.49 **	1.24 ***
	(0.19)	(0.24)	(0.33)	(0.18)	(0.22)	(0.30)
>3 Conditions	1.16 ***	1.13 ***	1.05 **	1.19 ***	0.64 **	1.78 ***
	(0.28)	(0.33)	(0.50)	(0.24)	(0.27)	(0.47)
ADLs>0	0.50 **	0.83 ***	-0.06	0.26	0.40 *	-0.03
	(0.24)	(0.28)	(0.43)	(0.19)	(0.21)	(0.34)
CESD>0	0.03	0.04	0.05	0.00	-0.10	0.13
	(0.10)	(0.13)	(0.16)	(0.10)	(0.12)	(0.16)
UnderWeight	-0.04	-0.18	0.83	0.07	-0.05	1.16
	(0.55)	(0.54)	(2.21)	(0.54)	(0.52)	(1.57)
Overweight	0.27 **	0.25 *	0.29 *	0.21 **	0.05	0.35 *
	(0.11)	(0.14)	(0.17)	(0.11)	(0.13)	(0.18)
Obese	0.17	0.05	0.30	0.11	0.07	0.14
	(0.13)	(0.16)	(0.22)	(0.13)	(0.14)	(0.22)
Smoking	-0.15	-0.25	-0.09	-0.28 **	-0.30 *	-0.21
	(0.12)	(0.16)	(0.19)	(0.13)	(0.16)	(0.21)
Drinking	0.13	0.03	0.28 *	0.01	0.02	0.02
	(0.10)	(0.13)	(0.16)	(0.10)	(0.12)	(0.16)
Mortality	0.04	0.25	-0.11	0.28	0.30	0.19
	(0.17)	(0.25)	(0.24)	(0.17)	(0.24)	(0.26)

Table 7-1: OLS Estimates of Log of Total Medical Expenditures by Waves (Cont.)						
	1WPEM			EM		
	Full	Female	Male	Full	Female	Male
Demographics and Other Variables						
Age	0.03	0.00	0.09	0.04	0.01	0.07
	(0.04)	(0.05)	(0.07)	(0.04)	(0.04)	(0.07)
Female	0.12	0.00	0.00	0.22 **	0.00	0.00
	(0.10)	(0.00)	(0.00)	(0.10)	(0.00)	(0.00)
Black	-0.12	-0.14	0.04	-0.31 **	-0.13	-0.43
	(0.15)	(0.18)	(0.25)	(0.15)	(0.17)	(0.26)
Other	-0.47	-0.84	-0.13	0.29	0.12	0.37
	(0.36)	(0.52)	(0.50)	(0.36)	(0.46)	(0.58)
Hispanics	-0.33	-0.55 *	-0.16	-0.34	-0.31	-0.28
	(0.22)	(0.28)	(0.34)	(0.21)	(0.26)	(0.36)
<High School	-0.35 **	-0.20	-0.54 **	-0.70 ***	-0.41 **	-1.00 ***
	(0.16)	(0.22)	(0.24)	(0.16)	(0.21)	(0.25)
High School	-0.30 **	-0.40 **	-0.18	-0.27 **	-0.17	-0.32
	(0.14)	(0.19)	(0.20)	(0.13)	(0.17)	(0.21)
College	-0.14	-0.21	-0.06	0.01	0.09	-0.02
	(0.15)	(0.20)	(0.23)	(0.15)	(0.19)	(0.24)
Married	-0.09	-0.05	-0.03	-0.07	0.02	-0.23
	(0.18)	(0.19)	(0.45)	(0.17)	(0.18)	(0.45)
Living Alone	-0.26	-0.17	-0.20	0.03	0.10	0.14
	(0.22)	(0.24)	(0.51)	(0.21)	(0.22)	(0.52)
HH Size 2	-0.06	0.00	-0.15	-0.05	0.06	-0.14
	(0.12)	(0.15)	(0.18)	(0.12)	(0.15)	(0.19)
Children Alive	0.44 **	0.17	0.72 **	0.59 **	0.70 **	0.50
	(0.20)	(0.27)	(0.31)	(0.24)	(0.32)	(0.38)
Work for Pay	-0.03	-0.04	0.00	-0.10	-0.11	-0.04
	(0.10)	(0.12)	(0.15)	(0.10)	(0.12)	(0.16)
HH Income	0.02 **	0.02	0.02 *	0.02 *	0.01	0.01
	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
NorthEast	0.02	0.08	-0.09	-0.10	0.00	-0.27
	(0.16)	(0.21)	(0.25)	(0.16)	(0.20)	(0.26)
Midwest	0.13	0.03	0.21	0.21	0.30	0.10
	(0.15)	(0.20)	(0.23)	(0.15)	(0.18)	(0.24)
South	-0.03	-0.18	0.08	0.13	0.21	0.01
	(0.14)	(0.19)	(0.22)	(0.14)	(0.17)	(0.23)
Cohort 1	-0.27 **	-0.19	-0.38 **	-0.29 **	-0.42 ***	-0.20
	(0.12)	(0.18)	(0.18)	(0.12)	(0.16)	(0.19)
Cohort 2	-0.22 **	-0.21	-0.21	-0.19 *	-0.21 *	-0.15
	(0.10)	(0.13)	(0.17)	(0.10)	(0.12)	(0.18)
Outlier for TOTMD	1.24 **	1.59 ***	1.02 ***	1.30 ***	0.79	1.53 ***
	(0.35)	(0.49)	(0.51)	(0.35)	(0.48)	(0.54)
Constant	4.21 **	6.64 **	0.42	3.27	5.74 **	1.82
	(2.50)	(2.98)	(4.50)	(2.58)	(2.89)	(4.85)
R-Squared	0.1432	0.1426	0.1795	0.1370	0.1203	0.1871
Adj. R- Squared	0.1263	0.1111	0.1448	0.1181	0.0854	0.1484
N	2013	1076	937	1932	1050	882

Table 7-2: OLS Estimates of Log of Total Medical Expenditures by Waves						
	1WAEM			2WAEM		
	Full	Female	Male	Full	Female	Male
Insurance Status Prior to Entering MC						
Uninsured	-0.08	0.10	-0.46	-0.23	-0.35	-0.12
	(0.16)	(0.18)	(0.30)	(0.24)	(0.31)	(0.42)
Insured 2WPEM	-0.33 *	-0.38 *	-0.25	-0.34	-0.55 *	-0.09
	(0.17)	(0.21)	(0.30)	(0.23)	(0.32)	(0.34)
Insured 1WPEM	-0.15	-0.01	-0.41	0.10	-0.38	0.57
	(0.20)	(0.23)	(0.36)	(0.26)	(0.36)	(0.40)
Insurance Status After Entering MC						
Current Privately Insured	0.23 **	0.20 *	0.27	0.37 ***	0.38 **	0.29
	(0.10)	(0.12)	(0.17)	(0.14)	(0.19)	(0.21)
Current Medicaid Insured	0.33	0.51 *	-0.05	1.05 ***	1.32 ***	0.78 *
	(0.23)	(0.28)	(0.39)	(0.27)	(0.36)	(0.41)
Health Status and Behaviors						
Very Good Health	0.34 **	0.31 *	0.38 *	-0.19	-0.53 *	0.08
	(0.13)	(0.16)	(0.22)	(0.20)	(0.29)	(0.28)
Good Health	0.30 **	0.25	0.34	0.06	-0.30	0.37
	(0.14)	(0.17)	(0.23)	(0.21)	(0.31)	(0.29)
Fair Health	0.64 ***	0.76 ***	0.44	0.30	0.01	0.60 *
	(0.18)	(0.22)	(0.31)	(0.24)	(0.36)	(0.34)
Bad Health	1.15 ***	1.06 ***	1.40 ***	0.54	0.38	0.83
	(0.27)	(0.32)	(0.46)	(0.36)	(0.53)	(0.54)
1 Condition	0.37 ***	0.56 ***	0.09	0.27	0.38	0.20
	(0.12)	(0.15)	(0.20)	(0.17)	(0.25)	(0.26)
2 Conditions	0.61 ***	0.75 ***	0.41 *	0.73 ***	0.84 ***	0.67 **
	(0.13)	(0.16)	(0.22)	(0.18)	(0.26)	(0.26)
3 Conditions	0.77 ***	0.78 ***	0.67 **	1.10 ***	1.36 ***	0.89 ***
	(0.16)	(0.19)	(0.27)	(0.21)	(0.29)	(0.30)
>3 Conditions	1.52 ***	1.36 ***	1.90 ***	1.49 ***	1.42 ***	1.73 ***
	(0.21)	(0.24)	(0.42)	(0.27)	(0.36)	(0.42)
ADLs>0	0.16	0.12	0.07	0.45 **	0.26	0.60 *
	(0.17)	(0.20)	(0.32)	(0.22)	(0.30)	(0.34)
CESD>0	0.09	0.18 *	-0.07	-0.11	0.05	-0.30 *
	(0.09)	(0.11)	(0.15)	(0.12)	(0.17)	(0.18)
UnderWeight	-0.10	-0.20	1.23	0.58	0.50	0.00
	(0.47)	(0.44)	(2.09)	(0.76)	(0.78)	(0.00)
Overweight	0.26 **	0.15	0.42 **	0.21	0.05	0.39 *
	(0.10)	(0.12)	(0.18)	(0.14)	(0.19)	(0.20)
Obese	0.13	0.16	0.06	-0.05	-0.17	0.03
	(0.12)	(0.14)	(0.22)	(0.16)	(0.22)	(0.25)
Smoking	0.07	-0.02	0.24	-0.56 ***	-0.67 ***	-0.45 *
	(0.12)	(0.15)	(0.21)	(0.18)	(0.25)	(0.27)
Drinking	0.09	0.20 *	-0.05	-0.01	0.08	-0.08
	(0.09)	(0.11)	(0.15)	(0.12)	(0.17)	(0.18)
Mortality	0.62 ***	0.95 ***	0.47	-	-	-
	(0.23)	(0.31)	(0.35)			

Table 7-2: OLS Estimates of Log of Total Medical Expenditures by Waves (Cont.)						
	1WAEM			2WAEM		
	Full	Female	Male	Full	Female	Male
Demographics and Other Variables						
Age	0.02	-0.05	0.15 **	0.07	0.01	0.13
	(0.04)	(0.04)	(0.07)	(0.05)	(0.07)	(0.09)
Female	0.22 **	0.00	0.00	-0.04	0.00	0.00
	(0.09)	(0.00)	(0.00)	(0.13)	(0.00)	(0.00)
Black	-0.17	-0.38 **	0.23	-0.31	-0.44 *	-0.08
	(0.14)	(0.16)	(0.26)	(0.19)	(0.25)	(0.34)
Other	0.18	-0.26	0.71	-0.47	0.09	-0.94
	(0.35)	(0.43)	(0.57)	(0.47)	(0.65)	(0.72)
Hispanics	-0.10	-0.29	0.46	0.30	0.33	0.30
	(0.20)	(0.24)	(0.36)	(0.27)	(0.39)	(0.39)
<High School	-0.36 **	-0.32 *	-0.37	-0.81 ***	-0.95 ***	-0.78 ***
	(0.15)	(0.19)	(0.24)	(0.20)	(0.30)	(0.28)
High School	-0.35 ***	-0.37 **	-0.31	-0.32 *	-0.35	-0.34
	(0.12)	(0.16)	(0.20)	(0.17)	(0.24)	(0.24)
College	-0.23 *	-0.25	-0.16	-0.50	-0.50 *	-0.60 **
	(0.14)	(0.17)	(0.23)	(0.18)	(0.26)	(0.27)
Married	0.12	0.18	-0.12	0.27	0.44 *	-0.43
	(0.16)	(0.16)	(0.40)	(0.21)	(0.25)	(0.48)
Living Alone	0.20	0.20	-0.04	0.39	0.42	-0.22
	(0.18)	(0.19)	(0.47)	(0.25)	(0.30)	(0.55)
HH Size 2	0.08	-0.10	0.31 *	0.00	-0.19	0.17
	(0.12)	(0.15)	(0.19)	(0.16)	(0.23)	(0.23)
Children Alive	0.00	0.01	-0.08	0.19	-0.40	0.86
	(0.32)	(0.46)	(0.48)	(0.70)	(1.08)	(1.01)
Work for Pay	-0.08	-0.01	-0.16	-0.06	-0.06	-0.08
	(0.09)	(0.12)	(0.15)	(0.13)	(0.20)	(0.19)
HH Income	0.02 **	0.02 *	0.02	0.00	-0.01	0.00
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
NorthEast	-0.35 **	-0.14	-0.63 **	-0.15	0.03	-0.22
	(0.15)	(0.18)	(0.25)	(0.20)	(0.30)	(0.28)
Midwest	-0.06	-0.08	-0.02	0.00	0.16	0.03
	(0.14)	(0.17)	(0.23)	(0.19)	(0.28)	(0.27)
South	-0.33 ***	-0.21	-0.48 **	-0.14	0.10	-0.32
	(0.13)	(0.16)	(0.22)	(0.18)	(0.26)	(0.25)
Cohort 1	-0.26 **	-0.39 **	-0.20	-0.23 *	-0.27	-0.20
	(0.12)	(0.15)	(0.18)	(0.12)	(0.18)	(0.18)
Cohort 2	-0.25 ***	-0.32 ***	-0.21	-	-	-
	(0.10)	(0.11)	(0.17)			
Outlier for TOTMD	1.55 ***	1.66 ***	1.58 ***	1.29 ***	1.49 ***	1.09 *
	(0.33)	(0.43)	(0.53)	(0.40)	(0.55)	(0.62)
Constant	5.81 **	10.56 ***	-3.23	2.36	6.97	-2.20
	(2.50)	(2.86)	(4.68)	(3.82)	(5.21)	(6.03)
R-Squared	0.1394	0.1786	0.1459	0.1757	0.2065	0.1820
Adj. R- Squared	0.1195	0.1447	0.1016	0.1434	0.1469	0.1149
N	1822	1010	812	1034	545	489

Table 8: OLS Estimates of Log Difference of Medical Expenditures Between Waves

Variables	Change in ME EM from 1WPEM			Change in ME 1WAEM from EM			Change in ME 2WAEM from 1WAEM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full	Female	Male	Full	Female	Male	Full	Female	Male
Insurance Status Prior to Entering MC									
Uninsured	0.50 **	0.23	1.09 ***	0.32 *	0.39 *	0.24	-0.30	-0.43	-0.01
	(0.20)	(0.24)	(0.36)	(0.19)	(0.23)	(0.34)	(0.28)	(0.35)	(0.53)
Insured 2WPEM	0.40 *	0.43	0.24	-0.14	-0.53 **	0.44	-0.24	-0.21	-0.20
	(0.22)	(0.27)	(0.36)	(0.21)	(0.26)	(0.34)	(0.27)	(0.36)	(0.42)
Insurance Status After Entering MC									
Insured 1WPEM	0.13	0.23	0.00	0.07	-0.10	0.33	-0.03	-0.46	0.52
	(0.25)	(0.30)	(0.44)	(0.23)	(0.28)	(0.40)	(0.31)	(0.42)	(0.50)
Privately Insured Last Wave	-	-	-	-0.26 *	-0.12	-0.45 **	-0.25	-0.22	-0.23
				(0.14)	(0.17)	(0.22)	(0.18)	(0.24)	(0.30)
Privately Insured Current Wave	0.09	-0.06	0.28	0.17	0.11	0.27	0.28	0.30	0.15
	(0.13)	(0.16)	(0.21)	(0.13)	(0.17)	(0.22)	(0.18)	(0.24)	(0.29)
Medicaid Insured Last Wave	-	-	-	-0.25	-0.12	0.03	0.29	-0.17	0.26
				(0.33)	(0.44)	(0.52)	(0.41)	(0.58)	(0.68)
Medicaid Insured Current Wave	0.02	0.08	0.04	0.21	0.00	0.11	0.70 **	1.23	0.22
	(0.32)	(0.41)	(0.54)	(0.28)	(0.39)	(0.44)	(0.35)	(0.49)	(0.54)
Health Status and Behavior									
Self-Report of Health Last Wave	-0.27	-0.12	-0.44 ***	-0.18 ***	-0.22 *	-0.14	-0.08	-0.23	0.05
	(0.07)	(0.09)	(0.12)	(0.07)	(0.09)	(0.11)	(0.09)	(0.13)	(0.14)
Self-Report of Health Current Wave	0.22	0.23 **	0.16	0.07	0.12	0.03	0.10	0.14	0.08
	(0.07)	(0.09)	(0.12)	(0.07)	(0.09)	(0.11)	(0.09)	(0.13)	(0.14)
# Conditions Last Wave	-0.74	-0.79 ***	-0.65 ***	-0.73 ***	-0.48 ***	-1.00 ***	-0.58 ***	-0.34 *	-0.85 ***
	(0.13)	(0.17)	(0.20)	(0.11)	(0.15)	(0.17)	(0.15)	(0.20)	(0.23)
# Conditions Current Wave	0.70	0.66 ***	0.75 ***	0.71 ***	0.52 ***	0.86 ***	0.59 ***	0.42 **	0.79 ***
	(0.13)	(0.17)	(0.19)	(0.11)	(0.14)	(0.17)	(0.14)	(0.20)	(0.21)
# ADLs Last Wave	-0.04	-0.12	0.13	-0.08	-0.17	0.04	-0.03	0.06	-0.22
	(0.13)	(0.14)	(0.25)	(0.12)	(0.14)	(0.27)	(0.18)	(0.22)	(0.37)
# ADLs Current Wave	-0.01	0.08	-0.11	0.19	0.12	0.36	0.02	-0.06	0.14
	(0.12)	(0.14)	(0.24)	(0.13)	(0.15)	(0.25)	(0.15)	(0.19)	(0.24)
CESD Score Last Wave	0.03	0.00	0.05	0.03	0.09 **	-0.09	-0.03	0.01	-0.18 *
	(0.04)	(0.05)	(0.07)	(0.04)	(0.04)	(0.07)	(0.05)	(0.06)	(0.10)
CESD Score Current Wave	-0.07	-0.14 ***	0.07	0.00	0.01	0.01	0.01	0.01	0.08
	(0.04)	(0.05)	(0.07)	(0.04)	(0.04)	(0.07)	(0.05)	(0.06)	(0.09)
UnderWeight Last Wave	-0.66	-1.31 *	1.79	0.78	0.17	5.12 *	-0.31	-0.50	0.00
	(0.72)	(0.81)	(1.76)	(0.62)	(0.62)	(2.33)	(0.91)	(0.91)	(0.00)
UnderWeight Current Wave	0.67	0.87	0.49	-0.64	-0.19	-	0.80	0.95	-0.61
	(0.60)	(0.69)	(1.29)	(0.67)	(0.64)		(0.67)	(0.71)	(2.19)
OverWeight Last Wave	0.13	-0.14	0.35	0.33 *	0.28	0.46	0.33	0.36	0.26
	(0.19)	(0.23)	(0.33)	(0.18)	(0.22)	(0.33)	(0.25)	(0.33)	(0.42)
OverWeight Current Wave	0.02	0.10	-0.14	-0.31 *	-0.22	-0.38	-0.33	-0.40	-0.27
	(0.19)	(0.23)	(0.33)	(0.18)	(0.22)	(0.32)	(0.25)	(0.33)	(0.41)
Obese Last Wave	0.21	-0.06	0.61 *	0.66 ***	0.70	0.45	0.47 *	0.35	0.46
	(0.27)	(0.33)	(0.45)	(0.25)	(0.31)	(0.44)	(0.35)	(0.47)	(0.57)

Table 8: OLS Estimates of Log Difference of Medical Expenditures Between Waves (Cont.)									
Variables	Change in ME EM from 1WPEM			Change in ME 1WAEM from EM			Change in ME 2WAEM from 1WAEM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full	Female	Male	Full	Female	Male	Full	Female	Male
Obese Current Wave	-0.33	-0.01	-0.86	-0.71 ***	-0.66 **	-0.63	-0.69	-0.78 *	-0.64
	(0.27)	(0.33)	(0.46)	(0.25)	(0.31)	(0.42)	(0.34)	(0.46)	(0.55)
Smoking Last Wave	0.75	0.98 ***	0.69 **	0.87 ***	0.74 **	1.51 ***	0.51	0.30	0.57
	(0.29)	(0.36)	(0.47)	(0.27)	(0.31)	(0.50)	(0.41)	(0.54)	(0.68)
Smoking Current Wave	-0.95	-1.03 ***	-1.16	-0.47 *	-0.51	-0.89 *	-1.11 ***	-0.88	-1.30 **
	(0.30)	(0.38)	(0.49)	(0.28)	(0.34)	(0.51)	(0.41)	(0.57)	(0.66)
Drinking Last Wave	0.24	0.22	0.36	0.10	0.24	-0.06	-0.11	-0.02	-0.16
	(0.15)	(0.19)	(0.27)	(0.15)	(0.18)	(0.26)	(0.19)	(0.27)	(0.30)
Drinking Current Wave	-0.18	-0.11	-0.33	-0.02	-0.07	0.07	0.03	-0.06	0.11
	(0.15)	(0.19)	(0.27)	(0.15)	(0.18)	(0.26)	(0.19)	(0.27)	(0.30)
Demographics and Other Variables									
Age	-0.03	-0.02	-0.04	0.00	-0.02	0.08	0.04	0.01	0.03
	(0.05)	(0.06)	(0.09)	(0.04)	(0.05)	(0.08)	(0.06)	(0.08)	(0.10)
Female	0.27	-	-	0.00	-	-	-0.23	-	-
	(0.12)			(0.11)			(0.15)		
Black	-0.16	-0.04	-0.33	0.08	-0.12	0.39	0.03	0.08	0.15
	(0.18)	(0.22)	(0.31)	(0.17)	(0.20)	(0.30)	(0.22)	(0.28)	(0.42)
Other	0.76	0.89	0.47	-0.06	-0.46	0.58	-0.53	0.42	-1.53 *
	(0.43)	(0.56)	(0.68)	(0.40)	(0.52)	(0.63)	(0.55)	(0.73)	(0.92)
Hispanics	-0.07	0.10	-0.44	0.27	0.08	0.66 *	0.12	0.20	-0.10
	(0.26)	(0.33)	(0.44)	(0.24)	(0.30)	(0.41)	(0.32)	(0.45)	(0.52)
<High School	-0.36	-0.19	-0.54 *	0.44 *	0.25	0.76 ***	-0.68 ***	-0.49	-0.87 **
	(0.19)	(0.26)	(0.30)	(0.18)	(0.24)	(0.27)	(0.23)	(0.33)	(0.34)
High School	0.11	0.23	-0.02	-0.04	-0.08	0.00	0.01	0.02	-0.10
	(0.16)	(0.22)	(0.24)	(0.15)	(0.20)	(0.22)	(0.19)	(0.26)	(0.29)
College	0.24	0.23	0.32	-0.28	-0.33	-0.28	-0.29	-0.42	-0.31
	(0.18)	(0.23)	(0.28)	(0.16)	(0.22)	(0.26)	(0.21)	(0.29)	(0.32)
Married Last Wave	0.00	0.43	-1.47	-0.44	-0.66 *	-0.06	0.05	-0.19	0.21
	(0.34)	(0.37)	(0.79)	(0.34)	(0.36)	(0.87)	(0.46)	(0.53)	(1.12)
Married Current Wave	-0.13	-0.44	1.13 *	0.68 **	0.73 **	0.42	-0.28	0.31	-1.34
	(0.33)	(0.36)	(0.80)	(0.33)	(0.35)	(0.83)	(0.44)	(0.54)	(0.87)
Living Alone Last Wave	0.02	0.15	-0.84	-0.37	-0.62 *	-0.79	-0.02	-0.05	0.14
	(0.33)	(0.37)	(0.74)	(0.32)	(0.35)	(0.83)	(0.46)	(0.53)	(1.23)
Living Alone Current Wave	0.05	0.06	0.76	0.47	0.55	0.61	0.28	0.39	-0.34
	(0.33)	(0.36)	(0.77)	(0.31)	(0.34)	(0.79)	(0.44)	(0.53)	(0.99)
HH Size 2 Last Wave	0.06	-0.14	0.38	-0.26	-0.69 ***	0.12	-0.13	-0.03	-0.26
	(0.19)	(0.24)	(0.30)	(0.18)	(0.22)	(0.28)	(0.24)	(0.35)	(0.37)
HH Size 2 Current Wave	-0.06	0.29	-0.47	0.39 **	0.46 **	0.34	0.44 *	0.15	0.77 **
	(0.19)	(0.25)	(0.31)	(0.18)	(0.23)	(0.30)	(0.24)	(0.35)	(0.37)
Children Alive Last Wave	1.43	2.01 **	0.97	-1.95	-0.65	-2.07	0.51	0.72	0.73
	(0.67)	(0.89)	(1.04)	(2.07)	(0.55)	(2.23)	(0.81)	(1.20)	(1.32)

Table 8: OLS Estimates of Log Difference of Medical Expenditures Between Waves (Cont.)									
Variables	Change in ME EM from 1WPEM			Change in ME 1WAEM from EM			Change in ME 2WAEM from 1WAEM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full	Female	Male	Full	Female	Male	Full	Female	Male
Work for Pay Last Wave	0.14	0.05	0.22	-0.02	-0.05	-0.12	-0.15	0.10	-0.42
	(0.13)	(0.17)	(0.21)	(0.14)	(0.19)	(0.21)	(0.19)	(0.29)	(0.28)
Work for Pay Current Wave	-0.10	-0.07	-0.08	0.01	0.11	-0.06	0.25	0.13	0.27
	(0.14)	(0.18)	(0.22)	(0.14)	(0.20)	(0.21)	(0.20)	(0.31)	(0.29)
HH Income Last Wave	0.01	0.03 *	0.00	0.01	0.04 *	0.00	0.00	-0.01	0.03
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.03)
HH Income Current Wave	0.00	-0.05	0.01	-0.01	-0.01	-0.02	-0.01	-0.02	-0.01
	(0.01)	(0.03)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.03)	(0.02)
Mortality	-0.01	0.00	-0.10	0.33	0.29	0.48	-	-	-
	(0.21)	(0.30)	(0.31)	(0.29)	(0.40)	(0.42)			
NorthEast	0.08	0.19 *	0.07	-0.04	0.14	-0.23	0.25	0.29	0.12
	(0.19)	(0.25)	(0.30)	(0.16)	(0.20)	(0.25)	(0.20)	(0.28)	(0.32)
Midwest	0.19	0.41 ***	0.03	0.17	0.35 *	-0.02	0.01	0.07	-0.16
	(0.18)	(0.23)	(0.28)	(0.16)	(0.21)	(0.26)	(0.22)	(0.31)	(0.33)
South	0.29	0.66	0.03	-0.19	-0.11	-0.27	0.15	0.02	0.25
	(0.17)	(0.21)	(0.27)	(0.13)	(0.16)	(0.21)	(0.17)	(0.22)	(0.27)
Cohort 1	0.00	-0.15	0.16	0.01	0.14	-0.11	-0.18	-0.22	-0.15
	(0.15)	(0.20)	(0.22)	(0.14)	(0.19)	(0.21)	(0.14)	(0.21)	(0.21)
Cohort 2	-0.10	-0.06	-0.18	0.07	0.03	0.12	-	-	-
	(0.12)	(0.15)	(0.21)	(0.11)	(0.14)	(0.19)			
Outlier for TOTMD	-0.23	-0.52	-0.13	0.13	0.51	-0.23	0.06	-0.05	0.24
	(0.43)	(0.58)	(0.66)	(0.41)	(0.53)	(0.67)	(0.46)	(0.62)	(0.74)
Constant	1.03	-0.05	3.00	0.49	2.09	-5.06	-2.69	-1.06	-1.57
	(3.12)	(3.70)	(5.68)	(2.95)	(3.49)	(5.40)	(4.38)	(5.77)	(7.20)
N	1866	1034	832	1771	995	776	1000	536	464
R-squared	0.0808	0.0942	0.1083	0.0864	0.0938	0.1581	0.0835	0.0870	0.1400
Adjusted R- Squared	0.0452	0.0490	0.0524	0.0587	0.0459	0.1001	0.0362	-0.0029	0.0428

Table 9: Ordered Probit Estimates of Self-Reported Change in Health Status Between Waves									
Variables	Change in HS EM from 1WPEM			Change in HS 1WAEM from EM			Change in HS 2WAEM from 1WAEM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full	Female	Male	Full	Female	Male	Full	Female	Male
Insurance Status Prior to Entering MC									
Uninsured	-0.04	-0.06	-0.09	0.14	0.16	0.12	0.18 *	0.10	0.33 ***
	(0.10)	(0.13)	(0.16)	(0.10)	(0.13)	(0.16)	(0.10)	(0.13)	(0.17)
Insured 2WPEM	0.08	-0.07	0.16	-0.04	-0.11	0.08	0.12	0.20	0.06
	(0.11)	(0.15)	(0.16)	(0.11)	(0.15)	(0.17)	(0.11)	(0.15)	(0.17)
Insured 1WPEM	-0.16	-0.22	-0.09	0.03	0.29 *	-0.28	0.01	-0.10	0.16
	(0.12)	(0.16)	(0.19)	(0.12)	(0.17)	(0.19)	(0.13)	(0.17)	(0.19)
Insurance Status After Entering MC									
Privately Insured Last Wave	-	-	-	-0.06	-0.10	-0.05	-0.01	-0.03	-0.01
				(0.07)	(0.10)	(0.11)	(0.07)	(0.10)	(0.11)
Privately Insured Current Wave	-0.15 **	-0.18	-0.09	0.02	0.04	0.05	-0.02	0.01	-0.03
	(0.06)	(0.09)	(0.09)	(0.07)	(0.10)	(0.11)	(0.08)	(0.10)	(0.11)
Medicaid Insured Last Wave	-	-	-	-0.07	-0.43	0.35	-0.08	-0.07	-0.13
				(0.17)	(0.25)	(0.26)	(0.16)	(0.25)	(0.23)
Medicaid Insured Current Wave	0.09	0.39	-0.30	-0.12	0.11 *	-0.30	0.17	0.21	0.13
	(0.16)	(0.21)	(0.25)	(0.14)	(0.22)	(0.20)	(0.15)	(0.21)	(0.22)
Health Status and Behaviors									
Very Good Health	0.02	0.10	-0.09	0.13	0.17	0.10	0.03	-0.03	0.09
	(0.08)	(0.12)	(0.12)	(0.08)	(0.12)	(0.13)	(0.09)	(0.13)	(0.14)
Good Health	0.30 ***	0.35 ***	0.20	0.25 ***	0.28 ***	0.24 *	0.23 **	0.15	0.27 *
	(0.09)	(0.12)	(0.13)	(0.09)	(0.12)	(0.13)	(0.10)	(0.14)	(0.14)
Fair Health	0.44 ***	0.35 ***	0.52 ***	0.60 ***	0.65 ***	0.59 ***	0.57 ***	0.46 ***	0.70 ***
	(0.10)	(0.14)	(0.15)	(0.11)	(0.15)	(0.16)	(0.11)	(0.16)	(0.16)
Bad Health	1.24 ***	1.09 ***	1.44 ***	1.05 ***	1.27 ***	0.79 ***	1.49 ***	1.53 ***	1.49 ***
	(0.15)	(0.21)	(0.24)	(0.15)	(0.21)	(0.22)	(0.16)	(0.23)	(0.25)
UnderWeight	-0.38	-0.35	-0.70	-0.09	-0.20	0.84	0.44	0.40	
	(0.32)	(0.36)	(0.75)	(0.28)	(0.31)	(0.70)	(0.34)	(0.34)	
Overweight	0.01	0.07	-0.07	0.02	0.06	-0.01	0.14 **	0.11	0.17 *
	(0.06)	(0.09)	(0.09)	(0.06)	(0.09)	(0.10)	(0.07)	(0.09)	(0.10)
Obese	-0.06	-0.02	-0.14	0.08	0.03	0.13	0.14 **	0.07	0.22 *
	(0.07)	(0.10)	(0.11)	(0.07)	(0.10)	(0.12)	(0.07)	(0.10)	(0.12)
Smoking	0.18 **	0.14	0.25 **	0.05	0.05	0.02	0.10	0.20 *	0.02
	(0.07)	(0.10)	(0.11)	(0.08)	(0.11)	(0.12)	(0.08)	(0.12)	(0.12)
Drinking	0.11 **	0.08	0.16 **	0.02	0.03	0.02	0.02	-0.04	0.07
	(0.06)	(0.08)	(0.08)	(0.06)	(0.08)	(0.08)	(0.06)	(0.08)	(0.09)

Table 9: Ordered Probit Estimates of Self-Reported Change in Health Status Between Waves (Cont.)									
Variables	Change in HS EM from 1WPEM			Change in HS 1WAEM from EM			Change in HS 2WAEM from 1WAEM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full	Female	Male	Full	Female	Male	Full	Female	Male
Medical Expenditures									
TOTMD in Last Wave	0.00	0.01	-0.01	-0.02	-0.03	-0.01	0.00	0.04	-0.02
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Demographics and Other Variables									
Age	0.02	0.04	0.00	0.00	0.01	-0.02	-0.01	0.01	-0.02
	(0.02)	(0.03)	(0.04)	(0.02)	(0.03)	(0.04)	(0.02)	(0.03)	(0.04)
Female	0.03	-	-	0.03	-	-	0.14	-	-
	(0.06)			(0.06)			(0.06)		
Black	-0.16 **	-0.15	-0.25 *	-0.14	-0.10	-0.23	-0.13	0.03	-0.36 **
	(0.09)	(0.12)	(0.14)	(0.09)	(0.12)	(0.14)	(0.09)	(0.12)	(0.15)
Other	-0.35 *	-0.28	-0.46	-0.13	-0.38	0.10	0.18	0.34	0.07
	(0.20)	(0.30)	(0.29)	(0.21)	(0.31)	(0.29)	(0.23)	(0.33)	(0.32)
Hispanics	0.09	0.17	0.02	0.12	-0.05	0.40 *	-0.21	-0.28	-0.09
	(0.12)	(0.17)	(0.18)	(0.13)	(0.17)	(0.19)	(0.13)	(0.18)	(0.20)
<High School	-0.05	0.08	-0.17	0.02	0.07	-0.01	-0.21 **	-0.36 **	-0.07
	(0.09)	(0.14)	(0.13)	(0.09)	(0.14)	(0.13)	(0.09)	(0.14)	(0.13)
High School	0.02	0.17	-0.13	-0.08	-0.05	-0.09	-0.19 **	-0.28 **	-0.11
	(0.08)	(0.12)	(0.11)	(0.08)	(0.12)	(0.11)	(0.08)	(0.12)	(0.12)
College	0.01	0.10	-0.08	-0.04	0.04	-0.13	-0.06	-0.10	-0.08
	(0.09)	(0.13)	(0.13)	(0.09)	(0.13)	(0.13)	(0.09)	(0.13)	(0.13)
Married Last Wave	-0.14	-0.14	-0.34	0.12	0.27	-0.06	-0.06	0.04	-0.10
	(0.17)	(0.20)	(0.35)	(0.18)	(0.21)	(0.42)	(0.18)	(0.22)	(0.33)
Married Current Wave	0.19	0.26	0.06	-0.06	-0.17	0.31	0.09	0.03	0.22
	(0.16)	(0.19)	(0.35)	(0.18)	(0.20)	(0.40)	(0.18)	(0.22)	(0.31)
Living Alone Last Wave	0.05	0.06	-0.03	0.34 **	0.42 **	0.50	-0.06	-0.05	0.09
	(0.17)	(0.20)	(0.34)	(0.18)	(0.21)	(0.42)	(0.18)	(0.22)	(0.37)
Living Alone Current Wave	-0.08	-0.10	-0.05	-0.14	-0.29	0.18	-0.04	-0.01	-0.20
	(0.16)	(0.20)	(0.35)	(0.17)	(0.20)	(0.39)	(0.18)	(0.21)	(0.37)
HH Size 2 Last Wave	-0.18 **	-0.19	-0.17	0.11	0.19	0.02	0.10	0.09	0.17
	(0.09)	(0.13)	(0.13)	(0.09)	(0.13)	(0.14)	(0.10)	(0.14)	(0.15)
HH Size 2 Current Wave	0.10	0.10	0.13	-0.01	-0.14	0.18	-0.06	-0.05	-0.10
	(0.09)	(0.13)	(0.14)	(0.10)	(0.14)	(0.15)	(0.10)	(0.14)	(0.15)

Table 9: Ordered Probit Estimates of Self-Reported Change in Health Status Between Waves (Cont.)									
Variables	Change in HS EM from 1WPEM			Change in HS 1WAEM from EM			Change in HS 2WAEM from 1WAEM		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Full	Female	Male	Full	Female	Male	Full	Female	Male
Children Alive Last Wave	-0.08 *	0.12	-0.34	-0.06	0.37	-0.24	-0.72	-1.94 *	0.33
	(0.34)	(0.48)	(0.49)	(1.23)	(0.33)	(1.28)	(0.81)	(1.16)	(1.29)
Children Alive Current Wave	0.62	0.40	1.02	0.29	-	0.38	0.51	1.38	-0.45
	(0.36)	(0.51)	(0.52)	(1.25)		(1.32)	(0.81)	(1.08)	(1.36)
Work for Pay Last Wave	0.02 ***	-0.06	0.13	0.13 *	0.08	0.18 *	-0.01	0.12	-0.15
	(0.06)	(0.09)	(0.09)	(0.08)	(0.11)	(0.11)	(0.08)	(0.12)	(0.11)
Work for Pay Current Wave	-0.18	-0.06	-0.26 ***	-0.13 *	-0.01	-0.26 ***	-0.07	-0.05	-0.10
	(0.07)	(0.10)	(0.10)	(0.08)	(0.12)	(0.11)	(0.08)	(0.12)	(0.12)
HH Income Last Wave	0.00	0.00	-0.01	0.00	-0.01	0.00	-0.01	-0.01 *	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
HH Income Current Wave	0.00	-0.01	0.00	0.00	0.00	0.00	0.00	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Mortality	0.55 ***	0.39 **	0.66 ***	0.39 ***	0.53 **	0.31 *	-	-	-
	(0.10)	(0.15)	(0.13)	(0.13)	(0.21)	(0.18)			
NorthEast	0.00	0.07	-0.04	0.10	0.08	0.16	0.02	0.12	-0.07
	(0.09)	(0.13)	(0.14)	(0.10)	(0.13)	(0.14)	(0.10)	(0.14)	(0.14)
Midwest	0.03	0.06	0.02	0.07	-0.05	0.25 *	0.02	0.07	-0.03
	(0.09)	(0.12)	(0.13)	(0.09)	(0.12)	(0.13)	(0.09)	(0.13)	(0.13)
South	0.02	0.18	-0.12	0.07	0.05	0.11	-0.01	0.03	-0.06
	(0.08)	(0.12)	(0.12)	(0.08)	(0.11)	(0.12)	(0.08)	(0.12)	(0.12)
Cohort 1	-0.12 *	0.02	-0.24 **	0.04	0.03	0.04	-0.02	0.09	-0.11
	(0.07)	(0.11)	(0.10)	(0.07)	(0.11)	(0.10)	(0.07)	(0.11)	(0.10)
Cohort 2	0.07	0.11	0.00	-0.06	-0.02	-0.10	0.08	0.12	0.02
	(0.06)	(0.08)	(0.09)	(0.06)	(0.08)	(0.10)	(0.06)	(0.08)	(0.10)
Cut1	0.26	2.13	-1.92	-1.42	-0.57	-2.33	-2.37	-1.35	-3.27
	(1.47)	(1.93)	(2.36)	(1.52)	(1.99)	(2.48)	(1.64)	(2.19)	(2.62)
Cut2	0.70	2.50	-1.38	-0.99	-0.14	-1.88	-1.72	-0.62	-2.67
	(1.47)	(1.93)	(2.36)	(1.52)	(1.99)	(2.47)	(1.64)	(2.19)	(2.62)
Cut3	2.97	4.75	0.99	1.15	1.95	0.39	0.39	1.52	-0.54
	(1.47)	(1.93)	(2.36)	(1.52)	(1.99)	(2.48)	(1.64)	(2.19)	(2.61)
Cut4	3.92	5.71	1.94	2.28	3.16	1.45	1.70	2.87	0.75
	(1.47)	(1.93)	(2.36)	(1.52)	(1.99)	(2.48)	(1.64)	(2.19)	(2.62)
N	2033	1059	974	1928	1018	910	1834	981	853
Pseudo R2	0.0601	0.0556	0.0886	0.0354	0.0487	0.0437	0.0504	0.0643	0.0522

Table 10: Marginal Effects of Being Uninsured on Health Change 2WAEM					
	Much Better	Better	Same	Worse	Much Worse
Full	-0.0082	-0.0177	-0.0332	0.0485	0.0106
Female	-0.0034	-0.0096	-0.0186	0.0263	0.0052
Male	-0.0159	-0.0294	-0.0593	0.0853	0.0193

APPENDIX A

Continuous Growth Rate

$$Y_1 = e^{rt} Y_0 \tag{4}$$

$$ln(Y_1) = ln(e^{rt} Y_0) = ln(e^{rt}) + ln(Y_0) \tag{5}$$

$$ln(Y_1) - ln(Y_0) = rt, \ since \ t = 1 \tag{6}$$

$$r = ln(Y_1) - ln(Y_0) = ln(\frac{Y_1}{Y_0}) \tag{7}$$

$\Longrightarrow$ This is continuous growth rate.

Taylor Expansion

$$ln(x) = f(x_0) + f'(x_0)(x - x_0) \tag{8}$$

$$= ln(x_0) + \frac{1}{x_0}(x - x_0) \quad at \ x_0 = 1 \tag{9}$$

$$= ln(1) + \frac{1}{1}(x - 1) \tag{10}$$

$$= x - 1 \tag{11}$$

for $ln\frac{Y_1}{Y_0}$, we get $ln\frac{Y_1}{Y_0} \simeq \frac{Y_1}{Y_0} - 1 \simeq \frac{Y_1 - Y_0}{Y_0}$