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The Effect of Increased Coverage on U.S. Medical Expenditures

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Abstract

The purpose of this research paper is to examine the effect of the health reform bill, known as the Patient Protection and Affordable Care Act (PPACA), on total medical expenditures in the United States. Since the PPACA will provide health insurance to an additional 32 million Americans, medical expenditures can be expected to increase since the government will have to insure individuals who presently have no health insurance. This paper will outline the present healthcare system in the United States and explain why there was a growing call for healthcare reform in the country. A regression analysis was performed using data from the 2006 Medical Expenditure Panel Survey (MEPS), a comprehensive survey of over 34 thousand civilian, non-institutionalized United States respondents designed to measure respondents' medical history and how they utilized medical treatments and care. The result of the regression analysis estimated that medical expenditures can be expected to increase by 7.44%, or roughly $17 billion, after full implementation of the PPACA in 2019.

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The healthcare system in the United States today is fundamentally flawed, a reality almost anyone with knowledge of the situation would concede. Although the quality of medical care given and the subsequent effects on patient health have never been better, medical costs continue to rise at a staggering rate. In addition to these medical costs, the number of individuals without health insurance has also been rising dramatically. This is a problem for American society because of the many negative externalities associated with uninsured individuals, such as uncompensated care, unnecessary use of the Emergency Room, and job-lock. When combined with the amount of money that is spent on healthcare, the inefficiency of America's current healthcare system, and the grim outlook for its future due to an aging workforce, it becomes apparent why there was such a loud call for healthcare reform in this country.

This call only intensified when President Obama took office in January 2009 and vowed to focus a large part of his domestic agenda on changing the healthcare system so that every American would have access to health insurance. After overcoming seemingly never-ending roadblocks in the form of disagreements between and within the House of Representatives and the Senate, members of Congress finally agreed upon a health reform bill on March 21, 2010. Known as the Patient Protection and Affordable Care Act, it was signed into law by President Obama two days later on March 23, 2010. A week later on March 30, 2010, President Obama also signed the reconciliation bill into law, known as the Health Care and Education Reconciliation Act of 2010 (Kaiser, 2010a).

With the signing of these bills, the healthcare system in this country will permanently change. By 2014, most of this new healthcare system will be implemented, with full implementation coming by 2019. Although the new bills do not ensure coverage for every

American like President Obama had originally wanted, they do ensure that 32 million previously uninsured individuals will now have health insurance (Kaiser, 2010b). Certainly, this is a positive step towards improving the healthcare landscape within this country, but as with all good things, there comes a price that must be paid.

In the case of increased healthcare coverage, the bulk of this 'price' is quite literally the amount by which total medical expenditures can be expected to increase. With the passage of the healthcare reform bill, most of the individuals without health insurance will now be covered, so it becomes imperative to know how much money the government can expect to spend as a result. This paper will attempt to answer that exact question by using panel data from the 2006 Medical Expenditure Panel Survey (MEPS) to run a regression to obtain the percentage change in medical expenditures from pre-reform bill to post-reform bill.

Background

Private Health Insurance

Similar to other nations, there are two insurance sectors in the United States: private and public. In the private sector, individuals can receive insurance by one of two ways, either through their employer or through a nongroup insurance market. As expressed by Figure 1, employer-sponsored health insurance is the most common form of health insurance for Americans, with 62% of the population being insured this way in 2003 (Chua, 2006, p. 1). Employers are able to provide insurance to their employees due to something known as risk pools, which are the groups of individuals who enroll in an insurance plan (Gruber, 2007, p. 417). The defining characteristic of these risk pools is the negative relationship between the number of enrollees and the risk taken by the company in insuring their employees, or in simpler terms, as the number of enrollees in the plan increases, the medical risk of the group as a whole

decreases. Since larger companies have more employees, they are more likely to offer health insurance to their workers because they assume less risk in doing so compared to smaller companies. In fact, the discrepancy between large and small firms that offer insurance is remarkable, with 98% of firms with more than 200 employees offering health insurance but only 47% of firms with less than 10 employees doing so (Gruber, 2007, p. 418).

Individuals who are not insured by their employers, or those who are self-employed or retired, have the option of enrolling in nongroup insurance, the other form of insurance in the private sector. Of the approximately 70 million people not covered by employer-based insurance, though, only 37%, or 27.1 million people, take part in nongroup insurance (Gruber, 2007, p. 420). An explanation can be found by understanding some of the major caveats of the nongroup insurance market. Since there are no risk pools in these nongroup insurance plans, the insurer assumes greater risk in insuring a high-risk, sick individual, so they charge a larger premium to compensate for the greater risk. Additionally, unlike employer-based insurance, the nongroup market allows insurers to deny coverage based on pre-existing conditions (Chua, 2006, p. 3). Since many of the sick individuals cannot obtain coverage without paying a ridiculously large premium, they choose to bypass this option altogether. As a result, nongroup insurance is the least common type of insurance in America, as can be seen in Figure 1.

Public Health Insurance

Turning our attention to the public sector, there are several public programs in place across the United States that are focused on helping out specific groups of individuals. The two most expansive of these programs are Medicare, which covers individuals aged 65 and over or those who have long-term disabilities, and Medicaid, a state-level program that provides medical assistance to the needy (US Census Bureau, 2008). Enacted by Congress in 1965 as Title XVIII

of the Social Security Act to provide better healthcare security to the elderly and disabled, Medicare today serves as the second biggest form of insurance for Americans after employer-sponsored care (Golinker, 2001). Medicare functions through a payroll tax of 1.45% shared by employers and employees alike, an amount that gets transferred to the government which in turn distributes it to Medicare enrollees. Any employee, along with their spouse, becomes eligible for Medicare after having worked a minimum of ten years (Gruber, 2007, p. 420). There are some drawbacks to Medicare, however, such as incomplete coverage for nursing facilities, incomplete preventative care, and no coverage for things such as dental care. For this reason, seniors on average pay 22% of their income on medical costs despite having Medicare (Chua, 2006, p. 2). Nevertheless, Medicare remains a welcome source of medical assistance for seniors across America.

Also part of the Social Security Act of 1965 was Medicaid, a program created to help out lower-income individuals (O'Connell, 2003). As discussed by Tim M. Henderson and Stephen Wilhide of the American Academy of Family Physicians (2005), Medicaid is the largest program that provides medical services to the country's poor; in fact, the program is designed to act in "the best interest of the recipients", as stated in its mission. Eligibility for Medicaid is extended to low-income parents, pregnant women, elderly, and children through age 18, as well as to the disabled. Unfortunately, eligibility for Medicaid is very exclusive, as those who fail to meet the qualifications do not receive any aid from the program. A reason for this is the wide scope of medical services offered by the program for enrollees, including inpatient and outpatient hospital care, prenatal care, nursing home services, and vaccinations for children. Due to the variety of medical services offered to recipients, medical providers receive a low reimbursement rate for

seeing a Medicaid patient, making these providers hesitant to see patients with Medicaid. This in turn makes it difficult for enrollees to find healthcare providers that accept Medicaid.

In addition to Medicare and Medicaid, there are other public programs for health insurance coverage. These programs are considered 'filler' programs, designed to fill in the gaps of non-insurance between different demographics and insurance plans. According to the US Census Bureau (2008), the most notable of these programs are the State Children's Health Insurance Program (SCHIP), a state-level program designed to help low-income children whose parents do not qualify for Medicaid, and several military healthcare plans, such as the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) and the Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMPVA). Along with other state-specific plans, 15% of the country's population is enrolled in some sort of public sector insurance plan, as can be seen in Figure 1. When combined with the number of people insured by their employer or through a nongroup market, roughly 82% of Americans are enrolled in some form of insurance, be it in the private or public sector.

The Uninsured

As for the health insurance status of the remainder of the United States' population, the reality is harsh: these people have no health insurance. Despite the importance we place on our health and well-being, many individuals in America today are forced to go against their instincts and ignore medical attention altogether due to their lack of health insurance coverage. In 2008, the number of uninsured people in the United States rose to 47 million, or a whopping 18% of the non-elderly (under 65 years) population (Chua, 2006, p. 1). The nature of the uninsured is discussed by Flávio Casoy, a fellow of the American Medical Student Association, in his paper "The Case for Universal Health Care" (2008). A common misconception relating to uninsured

individuals is that most of these individuals must be poor, yet this is far from the truth. In actuality, over 80% of uninsured people are employed but are unable to obtain health insurance, either because their employer does not offer it, because the employee premium is too high, or because they have not worked at their job long enough.

The burden of being uninsured can be great and extremely taxing on people. Financially, uninsured individuals who are stricken with a major illness such as cancer can face bankruptcy trying to pay for their medical costs, leading many to receive improper preventative care and, sometimes, to forego treatment entirely. With this in mind, it should come as no surprise that over 18,000 uninsured people aged 25-64 die each year, a number equal to the amount that die each year from diabetes, stroke, HIV, and homicide combined (Institute of Medicine, 2002). Indeed, these uninsured Americans are not at all in an enviable position.

Reasons to Care about the Uninsured

The important question pertaining to these uninsured individuals is why it should be a national concern if a percentage of Americans are without health insurance. Perhaps the first thought that comes to mind is the idea that healthcare should be a basic human right, along with 'necessities' like food, shelter, safety, and education. Whether such a notion is correct or not, though, is a question whose answer should be given by scholars of disciplines such as psychology or sociology, not economics. From an economic perspective, there are several issues that can be explored in order to illustrate exactly why we as a country should care about these uninsured people, including three particularly prominent issues. As talked about by Jonathan Gruber (2007), the first issue is uncompensated care, or the cost of delivering health care for which providers are not reimbursed. When uninsured individuals receive treatment from medical providers and do not pay the bills afterwards, these medical providers compensate for

this by raising costs for others, a process known as cost-shifting. In effect, when these uninsured people do not pay their bills because of financial difficulties, everyone else picks up the tab, and with the amount of uncompensated care delivered in the United States totaling $41 billion in 2006, it is quite a substantial tab to pick up.

The next issue ties in with the uncompensated care problem: the unnecessary use of the Emergency Room. When an uninsured person becomes ill, they have no choice but to go to the ER because no doctor will see them. In 2000, over 10% of ER visits were for non-emergencies, and when coupled with the fact that the average cost of an ER visit is $383, compared to only $60 on average for a visit to a physician's office, we see how the system loses billions of dollars (Casoy, 2008, p.5). The third major issue is that of job-lock, which is when an employee stays at his job even if he is unhappy or could be more productive elsewhere simply because of the health insurance coverage his job offers him (Conlin, 2007). In a country where the demand for entrepreneurship is ever-increasing because of the shifting of jobs overseas, this concept of job-lock is a major deterrent for potential entrepreneurs because once these individuals leave their jobs, they will no longer receive health care benefits from the employer. As such, these individuals will have to purchase health care on their own, but since most of these workers would end up without health insurance due to the high costs of nongroup insurance, they end up staying at their job. Thus, we can understand why a study performed in 2001 estimated the number of Americans who would be self-employed if not for health insurance at 3.8 million (Casoy, 2008, p. 6).

Problems with the Current Healthcare System

As one can see, the concept of having no health insurance causes many negative externalities, from uncompensated care and unnecessary ER visits to job-lock. As if the

problems created for society by having so many uninsured individuals were not enough, the situation is made worse by the rising costs of healthcare, estimated to be growing at 7-10% per year (Gruber, 2008, p. 64). Among economists who have attempted to ascertain the root cause of this rise, the general consensus is the same: healthcare costs have steadily risen due to the vastly improved technology in the medical field.

In order to better understand how new technology makes healthcare more expensive, we look at a study of the treatment of heart attacks over time conducted by David Cutler et al (1998). The study shows that from 1984 to 1991, the average cost of treating a heart attack rose by 4%, indicating there was a shift from cheaper, less-intensive treatments to more-expensive and intrusive treatments. Although the life expectancy of heart attack patients did rise by 8 months over that same span, the price paid by Medicare for each form of heart attack treatment actually fell, leading to the increase in costs we see today.

Further compounding these rising healthcare costs is the fact that America as a nation is becoming older. According to the US Census Bureau's Annual Projections of the Total Resident Population (2008), as America's "baby-boomers" get older, the over-65 age group will grow nearly four times faster than the nation's population as a whole in the period between 2010 and 2030. What this means for society is that as these baby-boomers become older, they will require more medical attention, meaning one can expect medical costs to continue to rise as a result. This is bad news for America considering that as a percentage of GDP, the United States already spends the most on healthcare than any other industrialized country, yet it still manages to finish dead last in efficiency (Guglielmo, 2008). When taking all these factors into account (the negative externalities that result from being uninsured, the rising costs of healthcare, and

America's aging population), it becomes evident why calls for healthcare reform in America were louder in recent months than ever before.

Patient Protection and Affordable Care Act

When President Obama took office in January 2009, one of his primary objectives regarding domestic issues was to overhaul the country's healthcare system, but he was not the first President to attempt this challenging endeavor. Presidents Truman, Carter, and Clinton each proposed a healthcare reform bill to increase health coverage, even going so far as to make health insurance mandatory, but each was unsuccessful. Even former president Theodore Roosevelt campaigned for a national health insurance plan when he ran for election in 1912, eventually losing to Woodrow Wilson (Goodridge, 2010). The common thread amongst each of these president's healthcare reform initiatives was the lack of support for the plan, either by Congress or by the American public. President Clinton's Health Security Act of 1993, for example, failed to pass in Congress because of partisan politics, powerful lobbying by those in the industry opposed to the plan, and greater priority given to other issues on the Congressional agenda. Just as importantly, there seemed to be a general lack of public support or acknowledgement that healthcare was in need of overhaul.

This sentiment continued to be the prevailing wisdom amongst the public even in the new decade, and matters were not helped by the fact that President Bush did not focus much of his domestic agenda on healthcare reform. Things started to change, though, when a growing number of researchers and those in the industry started to realize the cost of healthcare was growing faster than growth in GDP, with no foreseeable end in sight. Then, when the economic

recession hit the U.S. in 2008, healthcare spending became an albatross to the domestic budget, one that was becoming increasingly difficult to ignore.

The stage was set perfectly for President Obama to accomplish what previous presidents could not, but he too faced much opposition. There were many roadblocks in the form of disagreements amongst members of the House of Representatives and the Senate, amongst Democrats and Republicans, and amongst the general public. Nevertheless, Congress agreed upon the Patient Protection and Affordable Care Act (PPACA) on March 21, 2010, and it was signed into law by President Obama two days later on March 23, 2010. A week later, the reconciliation bill, known as the Health Care and Education Reconciliation Act of 2010, was passed as well, effectively changing healthcare in this country.

The PPACA is a comprehensive health reform bill with wide-ranging provisions that are designed to expand coverage, control costs, and improve the delivery system. The first of these provisions was also the most prominent, that is to provide coverage to more Americans. As a result of the PPACA, an additional 32 million Americans will have healthcare coverage when it is fully implemented in 2019. However, not everyone is required to have health insurance, as President Obama had originally aimed for, but those choosing to forego health insurance will have to pay a tax penalty of either $695 per year for individuals and $2,085 for families, or 2.5% of household income, whichever is greater. This penalty will be phased in slowly up until 2016, when it will be in full effect. Another provision designed to expand coverage is the expansion of Medicaid, which will cover all non-Medicare eligible individuals under age 65, such as children, pregnant women, parents, and adults without dependent children, whose incomes are up to 133% of the federal poverty line, which in 2009 was $18,310 for a family of three (Kaiser, 2010b).

Other important provisions in the PPACA include the creation of state-based Health Insurance Exchanges for individuals whose income is between 133-400% of the federal poverty line to purchase coverage. Similar health exchanges will also be created for small businesses, known as Small Business Health Options Program Exchanges (SHOP Exchanges). These SHOP Exchanges will allow small businesses with up to 100 employees to purchase qualified coverage, with businesses that have more than 100 employees being allowed to purchase coverage beginning in 2017. Finally, large employers will be required to pay a penalty for employees who receive tax credits for health coverage through an exchange, thereby encouraging these employers to offer health insurance (Kaiser, 2010b). As we can see, these provisions are wide-ranging and will have an impact on every sector of the healthcare industry.

Literature Review

The issue of how much is spent on medical care is a ubiquitous topic within the healthcare industry because it provides medical providers, pharmaceuticals, insurers, and even government officials a snapshot of how limited healthcare resources are being used and allocated. Since healthcare spending already accounts for 16.2% of the country's total GDP (CMS, 2008), it is crucial to know exactly how much money is being spent on medical care, who is receiving the care, and who is paying for the care. Additionally, researchers perform medical expenditure studies to gain a clearer picture of the landscape for specific diseases and treatments. It comes as no surprise, then, that there has been extensive literature written on the subject.

As is often the case with issues concerning how government funds are allocated, there is a large amount of research done by government agencies on the subject. One such agency is Centers for Medicare & Medicaid Services (CMS), a division of the U.S. Department of Health & Human Services. A CMS study performed in 2010, entitled *National Health Expenditure*

Projections 2009-2019 (2009), forecasts national health expenditures until 2019. According to the study, healthcare expenditures will rise at an even staggering rate due to the passage of the PPACA. By 2019, health spending is expected to be about $4.5 trillion, comprising 19.3% of GDP. Furthermore, public share of this spending will rise as well, going from 47% in 2008 to 52% in 2019. Medicare and Medicaid spending are each predicted to increase as well, which makes sense considering the expansion of coverage under the PPACA. Other projections include: the amount spent on health insurance premiums, the amount spent out-of-pocket, hospital spending, prescription drug spending, nursing home expenditures, and the amount spent on physician/clinical services, to name a few.

Another agency that has done extensive research on healthcare expenditure projections is the Henry J. Kaiser Family Foundation. In their study entitled *Covering the Uninsured in 2008: A Detailed Examination of Current Costs and Sources of Payment, and Incremental Costs of Expanding Coverage* (2008), researchers used MEPS data from 2002-2004 to predict how much it would cost to provide coverage to all of the approximately 47 million individuals who were without insurance in 2008. The study finds that total spending for the uninsured would increase by $122.6 billion to almost $299 billion if they became insured, compared to only $176 billion if they remain uninsured.

Along these same lines, studies performed by Heffler et al (2005), Gruber (2008), and Aizcorbe (2008) also estimate the amount healthcare costs will increase by. Finally, a September 2009 report by the Robert Wood Johnson Foundation estimates that out-of-pocket healthcare costs could possibly increase by as much as 35% by 2019 in every state. All of these studies illustrate the same point – healthcare spending will only get more expensive in the foreseeable future.

Predictably, the Congressional Budget Office (CBO) chooses to focus its attention on the positives of the PPACA. In a March 2010 letter to Speaker of the House Nancy Pelosi, the CBO makes only a cursory mention of how much the country will have to spend to pay for the increased coverage. Instead, the letter primarily focuses on how the legislation would result in a net reduction in federal deficits of over $140 billion during the 2010-2019 period.

Econometric Analysis

Explanation of Data

For this project, data was obtained from the 2006 Medical Expenditure Panel Survey (MEPS), which is a large-scale survey conducted by the Agency for Healthcare Research and Quality (AHRQ). According to its website, the MEPS data is comprised of many large-scale surveys of families and individuals, their medical providers (doctors, hospitals, pharmacies, etc), and employers across the United States, and it looks at the health services Americans use, how frequently they use them, the cost of these services, and how they are paid for, among other things (AHRQ, 2009).

As described in the data itself, there are two components to the MEPS data: the household component and the medical provider component. The household component, which first began in 1996, looks at data for individual households and for each person in the household as well. Information it collects includes: demographic characteristics, socio-economic status, expenditures, health conditions, healthcare use, sources of payment, health insurance coverage, access to care, satisfaction with health care, and employment. Since the survey is in a panel format, which includes five rounds of interviews over two full calendar years, it allows for the interpretation of data at the individual level for factors such as expenditures, healthcare use, and health insurance coverage, among others (AHRQ, 2008).

The medical provider component builds off of the household component and looks at information that household respondents can not accurately provide, due to having a lack of information, for example. Instead, with the permission of the respondents, a sample of medical providers are contacted by telephone to obtain information such as dates of visits, diagnoses, procedure codes, charges, and payments (AHRQ, 2008).

Together, these two components make up the comprehensive MEPS data, which consults over 34 thousand survey respondents and consists of 1,672 variables related to medical expenditures. Understandably, not all of these variables could be examined for the purposes of this project due to constraints of time and resources.

As a result, only those variables deemed most relevant or important to examining the issue of medical expenditures were used. These variables include: total medical expenditure (including prescription drugs), type of insurance coverage, age, family income as a percent of the poverty line, race, marital status, and diseases. For this last variable, the only diseases looked at were those referred to in the MEPS data as 'priority conditions', which are conditions that are relatively prevalent and for which generally accepted standards for appropriate clinical care have been developed (AHRQ, 2008). These 'priority conditions' were: sore throat, diabetes, asthma, high blood pressure, high cholesterol, emphysema, joint pain, arthritis, and heart disease, which includes coronary heart disease, angina, myocardial infarction, stroke, and other heart conditions.

After finding the names of these variables from the MEPS data, which has a unique coding system for its variable names, the general regression equation was obtained, shown here as Equation 1. A regression analysis is an econometric tool that measures the relationship between several variables, with one serving as the dependent variable and one or more serving as

the independent variables. In this project, total medical expenditure was the dependent variable, while all of the variables mentioned in the previous paragraph were the independent variables.

Equation 1

$$\%\Delta Totexp_i = \beta_0 + \beta_1 * medicaid_i + \beta_2 * medicare_i + \beta_3 * private\_insurance_i + \beta_4 * no\_insurance_i + \beta_5 * age_i + \beta_6 * age_i^2 + \beta_7 * disease1_i + \beta_8 * disease2_i + \beta_9 * income_i + \beta_{10} * black_i + \beta_{11} * hispanic_i + \beta_{12} * other\_race_i + \beta_{13} * married_i + \beta_{14} * divorced_i + \ldots + u_i$$

Results

The general regression equation, Equation 1, shows the total amount medical expenditures can be expected to increase by after implementation of the PPACA. In layman's terms, this regression equation calculates how much medical expenditure will change by when any one variable, such as family income or race, is varied and all other variables are held fixed.

Using Equation 1, total expenditures was regressed to find the amount of money spent by the government before the passage of the PPACA, when 47 million Americans were uninsured as of April 2010 (Kaiser, 2010a). Shown in Figure 2, the amount came to more than $853 billion. Then, the amount of money that the government will have to spend after the implementation of the PPACA, when 32 million Americans will be afforded health insurance, was predicted, with the amount coming out to be almost $917 billion, also seen in Figure 2. Unfortunately, the validity of these numbers is questionable due to the fact that the regression only takes into account the civilian, non-institutionalized population older than 17 years of age because the variables used from the MEPS dataset do not take into account individuals who did not meet these criteria. This excluded groups such as soldiers, inmates, nursing home residents, patients in mental institutions, and young children, among others.

Regardless, by looking at the percentage change between the total expenditure before and after the passage of the PPACA, an accurate estimate is found of how much medical expenditure will increase by. Looking at the regression, also in Figure 2, we see that roughly a 7.44% change in total expenditure can be expected after the PPACA is implemented. Using the total health expenditure estimate given by CMS for the year 2008, which was approximately $2.3 trillion, we can calculate the predicted expenditure. This number comes out to roughly a $17.02 billion increase in total expenditures.

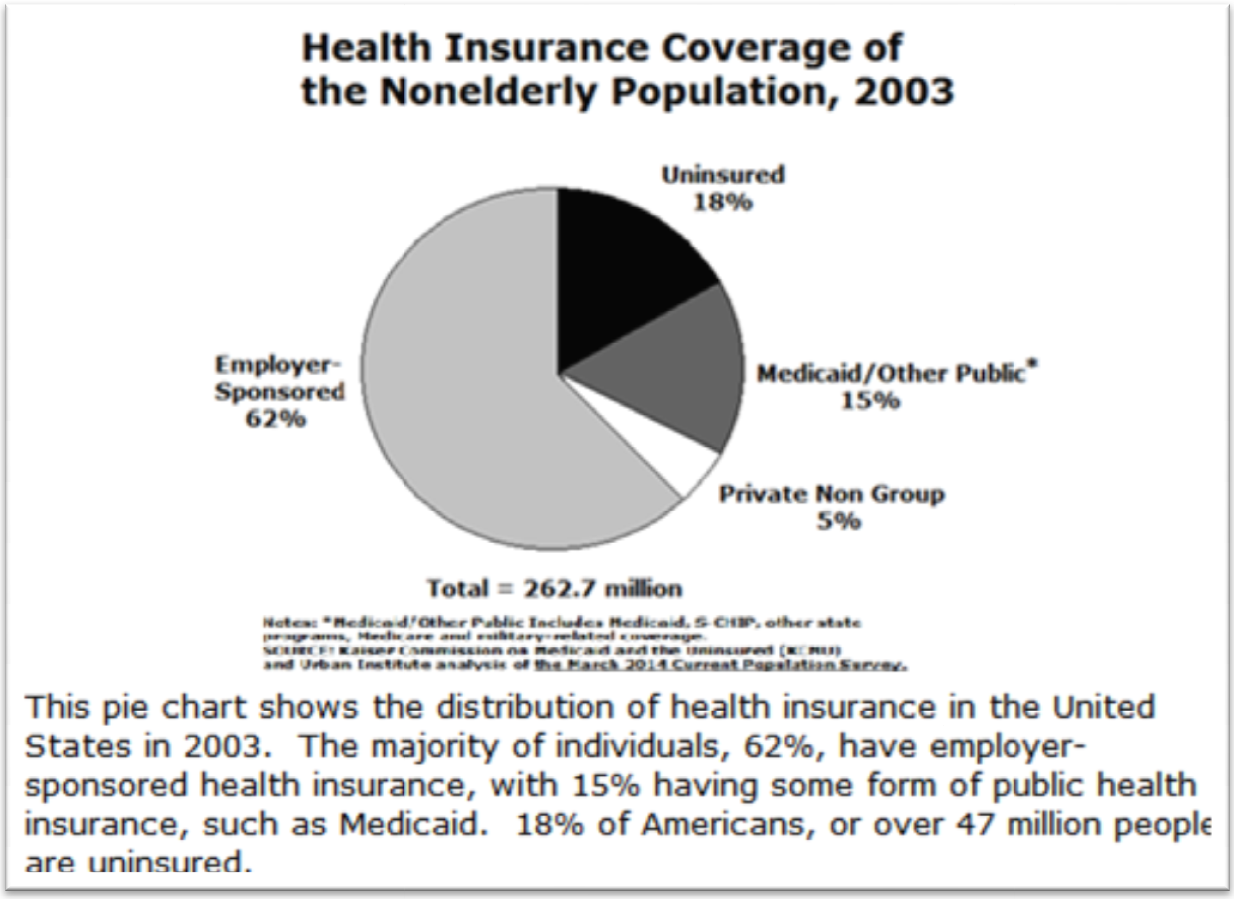
Conclusion

Looking at these results, we see that the cost of insuring an additional 32 million Americans, as the PPACA mandates, will be greater than $17 billion. Since health reform was such a contentious issue in Congress, in Washington, and in the general public, this estimate of $17 billion can be viewed one of two ways. Those who opposed health reform will look at this estimation as evidence that the PPACA was a misguided attempt to reform the healthcare system considering the country's tenuous financial situation. Conversely, those who supported health reform will view this estimation as a steep yet necessary price that must be paid to ensure the United States improves a healthcare system that was both inefficient and ineffective considering the 47 million Americans who were without healthcare coverage.

Which of these viewpoints turns out to be more correct is a question nobody knows at this time, but regardless of the answer, what is known is that the effect of the PPACA will be widespread. The healthcare system in the United States will change as we have long known it, and considering the country's dubious distinction of ranking last among industrialized countries in healthcare efficiency, that may not be such a bad thing. Nevertheless, the goodwill of insuring

32 million more Americans will be for naught if the PPACA does not have the effects it is expected to have, and that is something only time will tell.

The effect of the Patient Protection and Affordable Care Act on medical expenditures is an issue that will only become more important as the years pass and the PPACA is more fully implemented. Researchers and medical professionals will want to examine how the PPACA has changed patterns of behavior for medical providers, pharmaceuticals, insurance companies, and employers to determine if the health reform bill is having an adequate effect on these parts of the healthcare system. Also, government officials will want to study the short-term and long-term effects of the PPACA to decide whether the allocation of funds and resources to different sectors is sufficient. As such, this topic largely lends itself to future studies continuing the research done in this paper, which is to track changes in medical expenditures over the life of the PPACA.



This pie chart shows the distribution of health insurance in the United States in 2003. The majority of individuals, 62%, have employer-sponsored health insurance, with 15% having some form of public health insurance, such as Medicaid. 18% of Americans, or over 47 million people are uninsured.

Appendix

Figure 1

Figure 2

```
. cd "d:\documents and settings\aa84368n\Desktop\Senior Thesis"
d:\documents and settings\aa84368n\Desktop\Senior Thesis

.
. use alamdata

.
. #delimit ;
delimiter now ;
. gen insured = insurance_public==1 | insurance_private ==1
> if insurance_public<. & insurance_private<. ;

. reg totexp06 insured income_poor income_nearpoor
> income_low income_high
> ethrace_nhblack ethrace_nhother ethrace_hispanic
> marital_widowed marital_divorced
> marital_never_married marital_too_young marital_other
> corehealth_diab corehealth_asth
> corehealth_hibp corehealth_chol corehealth_emph
> corehealth_jtpain corehealth_arth corehealth_chd
> corehealth_angi corehealth_mi
> corehealth_ohrt corehealth_strk
> [pw=perwt06f] ;
(sum of wgt is   2.1659e+08)
note: marital_too_young omitted because of collinearity

Linear regression                                      Number of obs =   22083
                                                       F( 24, 22058) =   72.55
                                                       Prob > F      =  0.0000
                                                       R-squared     =  0.1278
                                                       Root MSE      =  9107.3
```

totexp06	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
insured	2045.598	105.7983	19.33	0.000	1838.226	2252.971
income_poor	806.7077	209.1307	3.86	0.000	396.7967	1216.619
income_nea~r	994.1564	360.065	2.76	0.006	288.4033	1699.909
income_low	108.0889	199.7283	0.54	0.588	-283.3928	499.5707
income_high	194.5473	161.3258	1.21	0.228	-121.6629	510.7575
ethrace_nh~k	-220.2992	192.7921	-1.14	0.253	-598.1855	157.5871
ethrace_nh~r	-275.3548	331.7791	-0.83	0.407	-925.6656	374.9561
ethrace_hi~c	-561.0455	150.9348	-3.72	0.000	-856.8885	-265.2025
marital_wi~d	389.8514	396.7018	0.98	0.326	-387.7126	1167.415
marital_di~d	-22.85019	231.4724	-0.10	0.921	-476.5527	430.8523
marital_ne~d	-341.2179	126.5544	-2.70	0.007	-589.2736	-93.16222
marital_to~g	(omitted)					
marital_ot~r	95.62764	318.1082	0.30	0.764	-527.8873	719.1425
corehealth~b	3309.208	385.6212	8.58	0.000	2553.363	4065.053
coreheal~sth	1221.11	259.31	4.71	0.000	712.8441	1729.377
corehealth~p	1666.861	224.0006	7.44	0.000	1227.804	2105.918
corehealth~l	741.6484	210.9984	3.51	0.000	328.0764	1155.22
corehealt~ph	4948.269	1081.151	4.58	0.000	2829.137	7067.402
corehealth~n	944.1535	182.3961	5.18	0.000	586.6442	1301.663
coreheal~rth	1909.506	278.8402	6.85	0.000	1362.959	2456.052
corehealth~d	5055.736	1126.697	4.49	0.000	2847.329	7264.143
corehealt~gi	2377.428	1159.628	2.05	0.040	104.4746	4650.382
corehealt~mi	729.0754	960.6227	0.76	0.448	-1153.814	2611.965
corehea~ohrt	2357.932	443.8194	5.31	0.000	1488.014	3227.849
corehealth~k	3321.849	755.8895	4.39	0.000	1840.252	4803.447
_cons	-51.00357	156.6956	-0.33	0.745	-358.1382	256.1311

Figure 2 (continued)

```
. #delimit cr
delimiter now cr
.
. predict health_expend_current
(option xb assumed; fitted values)
(11495 missing values generated)

. gen insured_original = insured

. replace insured =1
(5541 real changes made)

. predict health_expend_allinsured
(option xb assumed; fitted values)
(11495 missing values generated)

.
. sum health_expend_current [fw=round(perwt06f)]
```

Variable	Obs	Mean	Std. Dev.	Min	Max
health_exp~t	2.166e+08	3940.308	3483.856	-953.267	30771.92

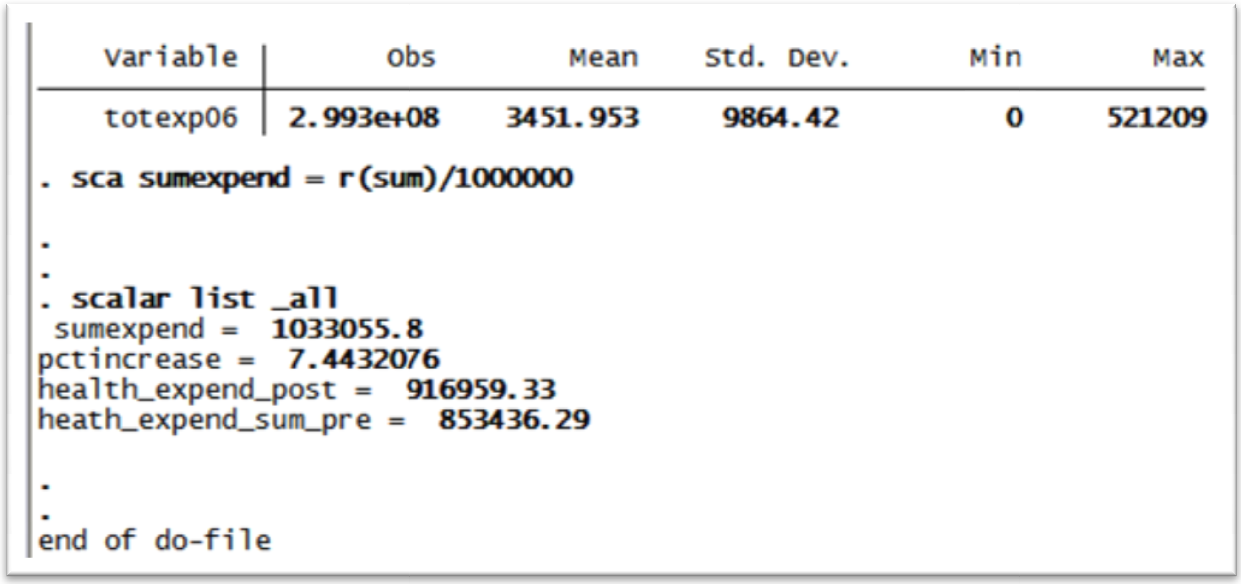
```
. scalar heath_expend_sum_pre = r(sum)/1000000

. sum health_expend_allinsured [fw=round(perwt06f)]
```

Variable	Obs	Mean	Std. Dev.	Min	Max
health_exp~d	2.166e+08	4233.594	3305.156	1092.331	30771.92

```
. scalar health_expend_post = r(sum)/1000000

.
. scalar pctincrease = (health_expend_post/heath_expend_sum_pre-1)*100
```



Variable	Obs	Mean	Std. Dev.	Min	Max
totexp06	2.993e+08	3451.953	9864.42	0	521209

```
. sca sumexpend = r(sum)/1000000

.
.
. scalar list _all
 sumexpend =  1033055.8
pctincrease =  7.4432076
health_expend_post =  916959.33
heath_expend_sum_pre =  853436.29

.
.
end of do-file
```

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